

Socioeconomics and Land Use Technical Report

RICHMOND HIGHWAY (ROUTE 1) CORRIDOR IMPROVEMENTS PROJECT BETWEEN JEFF TODD WAY AND NAPPER ROAD, FAIRFAX COUNTY, VIRGINIA



VDOT Project #: 0001-029-205, C501, P101, R201

UPC#: 107187

[July 2020]

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List of Acronyms

ACS	American Community Survey
BRT	Bus Rapid Transit
CBC	Community Business Centers
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
DRPT	Department of Rail and Public Transportation
EA	Environmental Assessment
EJ	Environmental Justice
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
GIS	Geographic Information System
HHS	Department of Health and Human Services
LEP	Limited English Proficiency
NAICS	North American Industry Classification System
NEPA	National Environmental Policy Act
REX	Richmond Highway Express
SUP	Shared Use Paths
USDOT	US Department of Transportation
VDOT	Virginia Department of Transportation

1. INTRODUCTION

1.1 PROJECT DESCRIPTION

The Virginia Department of Transportation (VDOT), in cooperation with the Federal Highway Administration (FHWA), is preparing an Environmental Assessment (EA) for the Richmond Highway (Route 1) Corridor Improvements Project between Jeff Todd Way and Napper Road. Improvements are proposed for an approximate 2.9-mile section of Richmond Highway between Route 235 (Mount Vernon Memorial Highway – South) to 0.07 miles north of Route 235 (Mount Vernon Highway – North) at Napper Road. The environmental study area south to tie into the recently completed Richmond Highway Widening project through Fort Belvoir, and extends a little further north along the Richmond Highway to Sherwood Lane (**Figure 1-1**). The EA is being prepared in accordance with the National Environmental Policy Act (NEPA), FHWA regulations at 23 Code of Federal Regulations (CFR) § 771 and Technical Advisory T6640.8A, and Council on Environmental Quality (CEQ) guidance at 40 CFR § 1500 -1508.

Based on historical connections to the state capital in Richmond, Route 1 is also known as the “Richmond Highway.” Richmond Highway is the principal north-south route for local traffic in eastern Fairfax County for shopping and other general-purpose trips, and serves as a major commuter route and an alternate north-south route for nearby Interstate 95 (I-95). The section of Richmond Highway evaluated in this EA is in the southeast portion of Fairfax County between Hybla Valley to the north and Fort Belvoir to the south.

Richmond Highway on either side of the Study Area has six general purpose lanes (**Figure 1-2**). Beginning at the southwest end of the current Study Area at the Mount Vernon Memorial Highway (VA 235)/Jeff Todd Way intersection, a construction project is underway that widens Richmond Highway to six lanes extending 3.68 miles south through Fort Belvoir and ending at Telegraph Road. Richmond Highway has also been previously widened to six general purpose lanes from approximately the Ladson Lane intersection in the northern Study Area, north to I-95/I-495.

The purpose of this Socioeconomics and Land Use Technical Report is to identify the existing socioeconomic resources and land use characteristics in the Study Area and assess the potential impacts of the No-Build and Build Alternatives retained for analysis in the EA. This report supports discussions presented in the EA.

- **Section 1** provides an overview of the study.
- **Section 2** describes an overview of the existing communities, community facilities, and bike paths/recreational facilities.
- **Section 3** presents an overview of existing population, housing, and environmental justice (EJ) conditions.
- **Section 4** describes existing economic conditions.
- **Section 5** discusses existing land use conditions.

Figure 1-1: Study Area

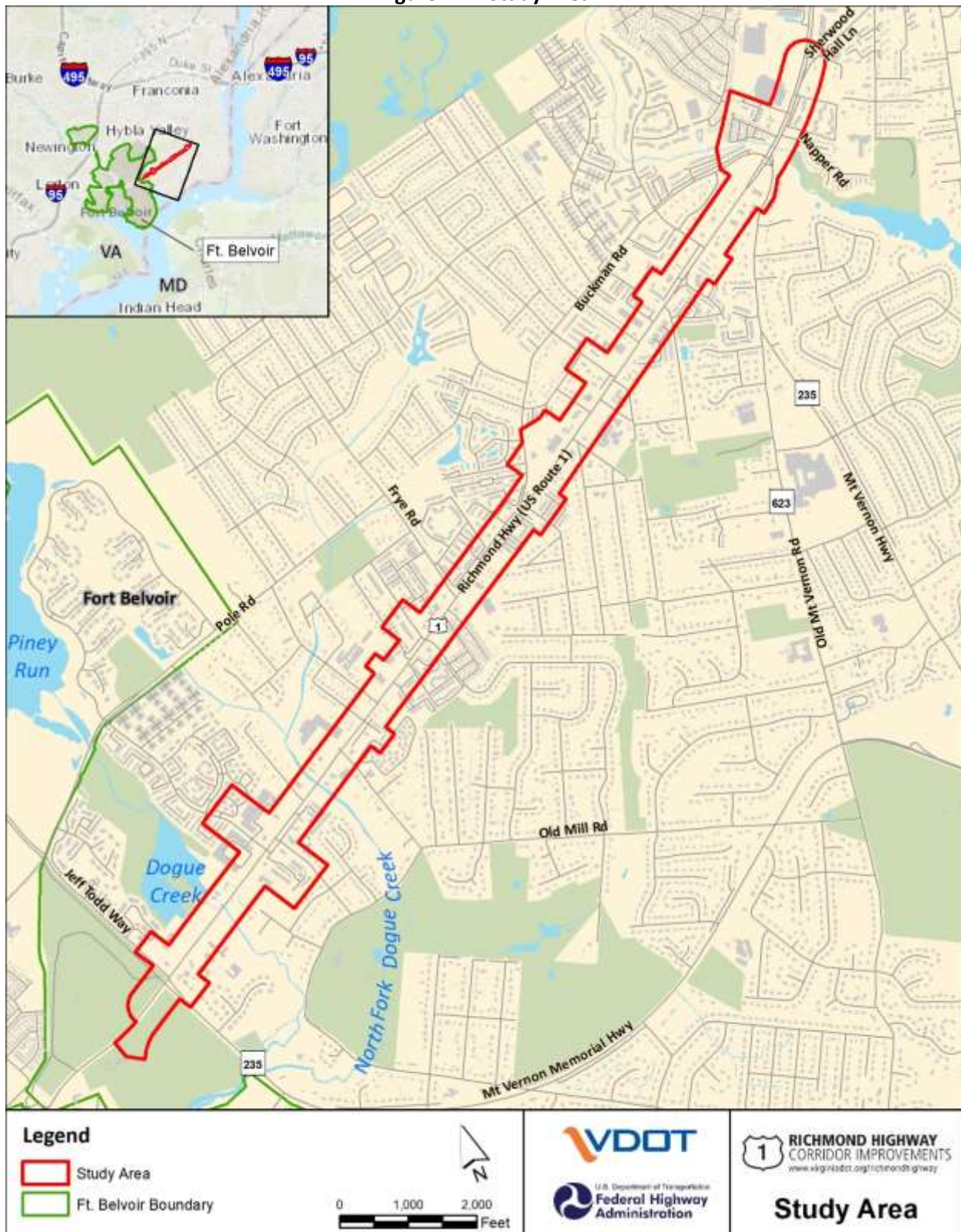
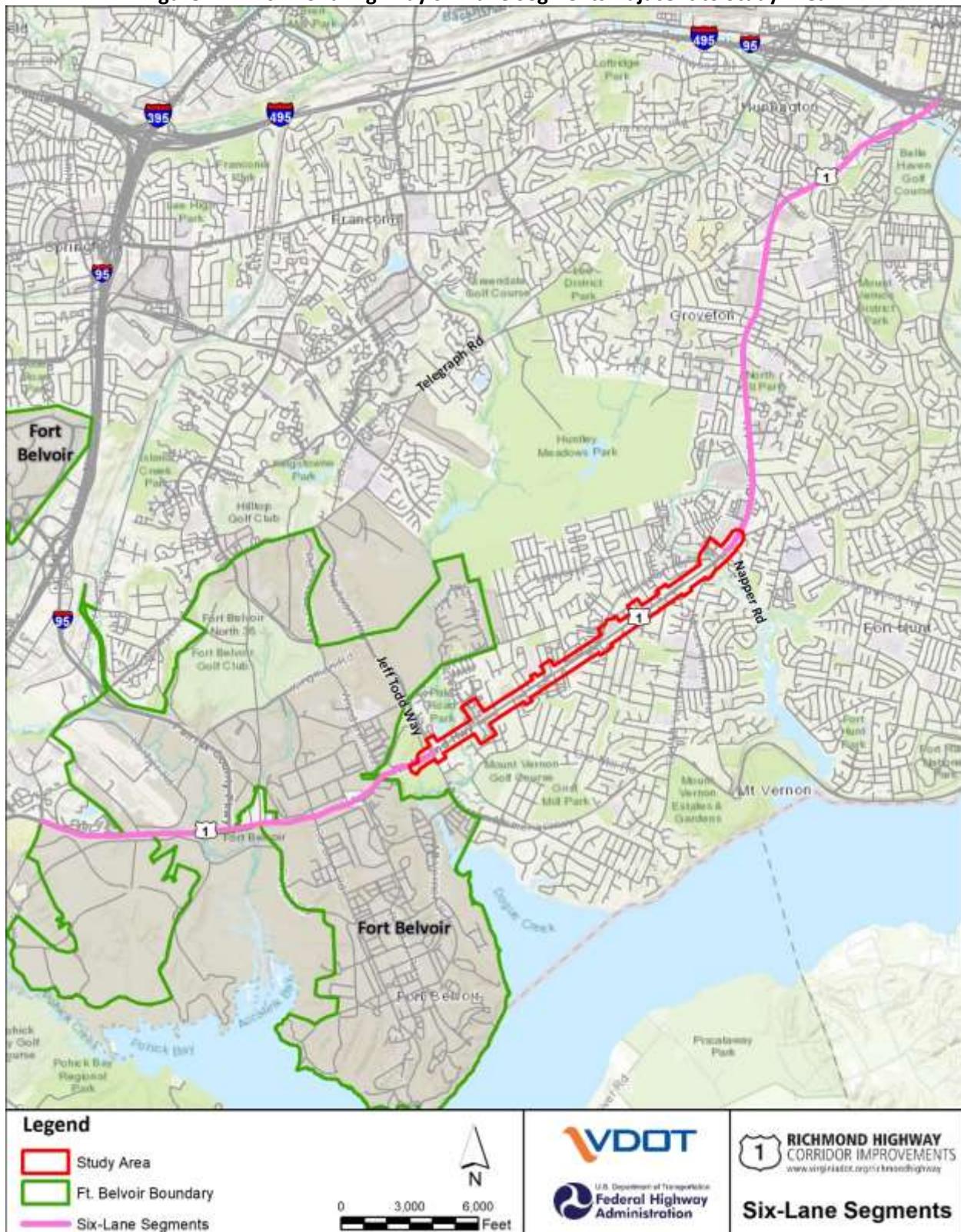


Figure 1-2: Richmond Highway Six-Lane Segments Adjacent to Study Area



1.2 PURPOSE AND NEED

The Richmond Highway Corridor Improvements EA will address the following purpose and needs:

- Accommodate Travel Demand – better accommodate existing and future travel demand at peak travel hours, reducing congestion and increasing corridor accessibility and mobility (including Bus Rapid Transit [BRT] implementation based on the Department of Rail and Public Transportation [DRPT] Multimodal Study [DRPT, 2015] and Fairfax County Board of Supervisors Resolution [Fairfax County, 2015])
- Improve Safety – implement access control; provide adequately spaced signalized intersections; provide turn lanes where needed; improve structures at natural stream crossings; and enhance pedestrian and bicycle facilities

1.3 ALTERNATIVES

1.3.1 No-Build Alternative

The No-Build Alternative includes continued road maintenance and repairs of existing transportation infrastructure within the Study Area. The Metropolitan Washington Council of Governments (MWCOC) Transportation Improvement Program does not have any planned improvement projects listed for Richmond Highway within the Study Area. The MWCOC Constrained Long-Range Plan includes the current study for widening Richmond Highway, and the separate study of future BRT in the Richmond Highway median from the Huntington Metro Station approximately 3.5 miles north of the Study Area, continuing approximately 8 miles south to the Woodbridge Virginia Railway Express Station, consistent with the DRPT Multimodal Study / Fairfax County Board of Supervisors Resolution. For the purposes of this study, the No-Build Alternative does not include either proposed project. The No-Build Alternative serves as the baseline against which the potential environmental effects of the Build Alternative are compared.

1.3.2 Build Alternative

The Build Alternative is generated from the 2015 *US Route 1 Multimodal Alternatives Analysis* Locally Preferred Alternative (Alternative 4 BRT / Metrorail Hybrid) selected by Fairfax County and the Department of Rail and Public Transportation (DRPT). The identified Build Alternative is to widen Richmond Highway from a four-lane undivided roadway to divided six-lane facility with bicycle and pedestrian accommodations, and a median wide enough to accommodate BRT as called for in the DRPT Multimodal Study / Fairfax County Board of Supervisors Resolution. The median would be maintained as a grass strip until the implementation of the BRT. The bridges at Dogue Creek and Little Hunting Creek would be widened. To enable maintenance of traffic (MOT) during construction at the Little Hunting Creek Bridge, a new bridge would be built in the median that could also be used for future transit.

In response to public comments received on the Draft EA and in other community meetings, as well as agency coordination, alternatives to providing pedestrian access at the Dogue Creek and Little Hunting Creek bridges were evaluated as part of the Build Alternative. Providing connections to future recreational trails along the two creeks and enhancing pedestrian safety are desired by the County.

Currently, the Richmond Highway crossing at Dogue Creek does not provide pedestrian access either across the bridge, from one side of the highway to the other, or to Dogue Creek on either side of the bridge. The nearest pedestrian crosswalk on Richmond Highway to Dogue Creek is at the signalized Sacramento Drive intersection (approximately 985 feet north). At Little Hunting Creek, sidewalks are on both sides of the bridge, but no pedestrian access is provided to the creek on either side. The nearest

crosswalk on Richmond Highway to the Little Hunting Creek Bridge is approximately 80 feet south at the signalized Buckman Road/Mt. Vernon Memorial Highway intersection. Providing new at-grade signalized crossings at the two bridges on the widened highway under the Build Alternative would involve a two-stage crossing of Richmond Highway, increasing vehicle and pedestrian conflicts that reduce safety.

A pedestrian overpass or underpass provides an alternative to crosswalks at signalized intersections, and would involve a single-stage crossing that separates vehicular traffic from pedestrians, improving safety. A pedestrian overpass was considered at Little Hunting Creek and eliminated primarily because of excessive cost. Pedestrian underpasses at Little Hunting Creek and Dogue Creek would be technically feasible and improve safety by reducing vehicular / pedestrian conflict. Pedestrian underpasses were therefore included in the Build Alternative using planning-level design, and assessed for potential environmental impacts.

1.4 METHODOLOGY

The Study Area is generally defined as 300 feet on either side of the existing Richmond Highway centerline, with additional areas extending as much as 1,000 feet for access management (**Figure 1-1**). Resource-specific methodology is included under each socioeconomic resource evaluated: communities, community facilities, bike paths and recreational trails, population and housing characteristics, EJ, economics, and land use.

2. COMMUNITIES AND COMMUNITY FACILITIES

2.1 COMMUNITIES

2.1.1 Methodology

Transportation corridors have the potential to directly impact communities and community cohesion in different ways. Community cohesion, as used in this analysis, is a loosely defined concept of community identity, potentially based on shared ethnicity; coherent design features in a community's layout and aesthetics; and spatial cohesion gained by accessibility to neighbors, community facilities, goods, and services. The level of cohesion in communities varies, depending on how long residents have stayed or plan to stay in the area and the accessibility to services and community facilities. Transportation impacts to community cohesion "may be beneficial or adverse, and may include splitting neighborhoods, isolating a portion of a neighborhood or an ethnic group or separating residents from community facilities" (FHWA, 1987). Construction and expansion of existing transportation corridors can disrupt community cohesion by changing connectivity between residential neighborhoods (i.e., physically dividing communities); displacing residents; disrupting access to community facilities, either on a temporary or permanent basis; and introducing noise and visual elements incompatible with existing surrounding conditions (FHWA, 1996; 1998). Transportation projects also may enhance access within communities by improving connectivity, contributing to a community's layout and aesthetics through design features and amenities such as pocket parks, and improving accessibility to new goods and services, such as within food desert neighborhoods.

2.1.2 Existing Conditions

The Study Area is in southeastern Fairfax County. The *Fairfax County Comprehensive Plan (2013)* divides the county into four primary planning areas (**Figure 2-1**), with further subdivisions into districts and sectors (**Figure 2-2**).

Per the existing *Comprehensive Plan*, the Mount Vernon Area Plans contain recommendations for land use, transportation, housing, the environment, heritage resources, public facilities, and parks and recreation. The Study Area is located entirely within **Planning Area IV** and the **Mount Vernon Planning District (Figures 2-1 and 2-2)**. The Planning Districts contain site-specific guidance that implements the countywide Policy Plan, which includes the Fairfax County Concept for Future Development. Planning Sectors contain guidance on the specific uses, ranges of residential density or land use intensity, as well as alternative or optional uses for certain tracts of land in the sector.

Mount Vernon Planning District

The Mount Vernon Planning District is generally bordered by I-495/I-95 to the north, the Potomac River to the east, Dogue Creek to the South, and Huntley Meadows Park to the west (**Figure 2-2**). This District is diverse in character with the Huntington Metro Station located to the north and Fort Belvoir to the southwest. The Study Area lays within the southeast portion of this Planning District. Richmond Highway is a major north-south corridor through the Mount Vernon Planning District. Most of this District contains single-family homes except, along Richmond Highway, where there are high-density residential developments as well as commercial activity centers, including community/neighborhood shopping centers and strip malls.

Figure 2-1: Study Area and Fairfax County Planning Areas

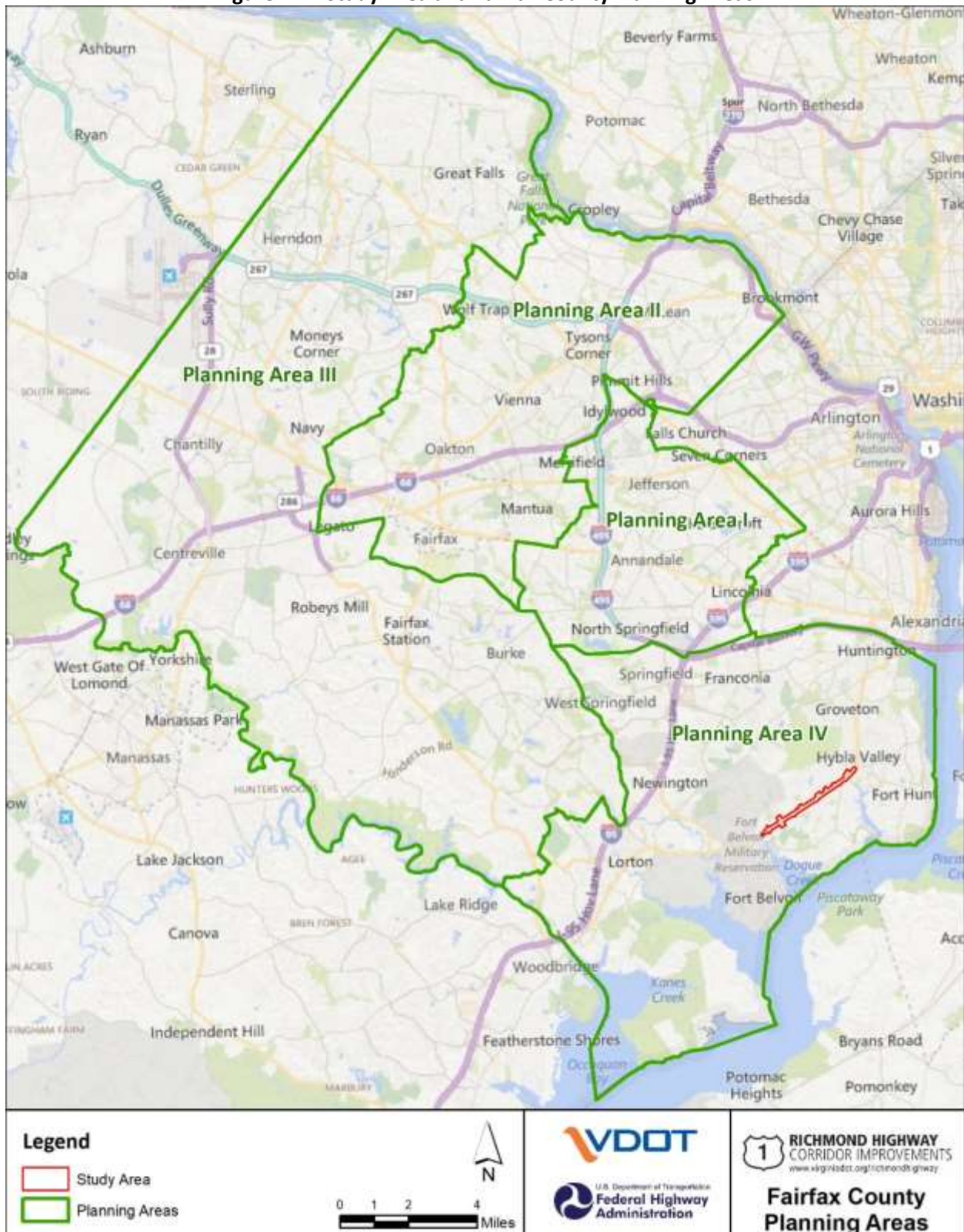
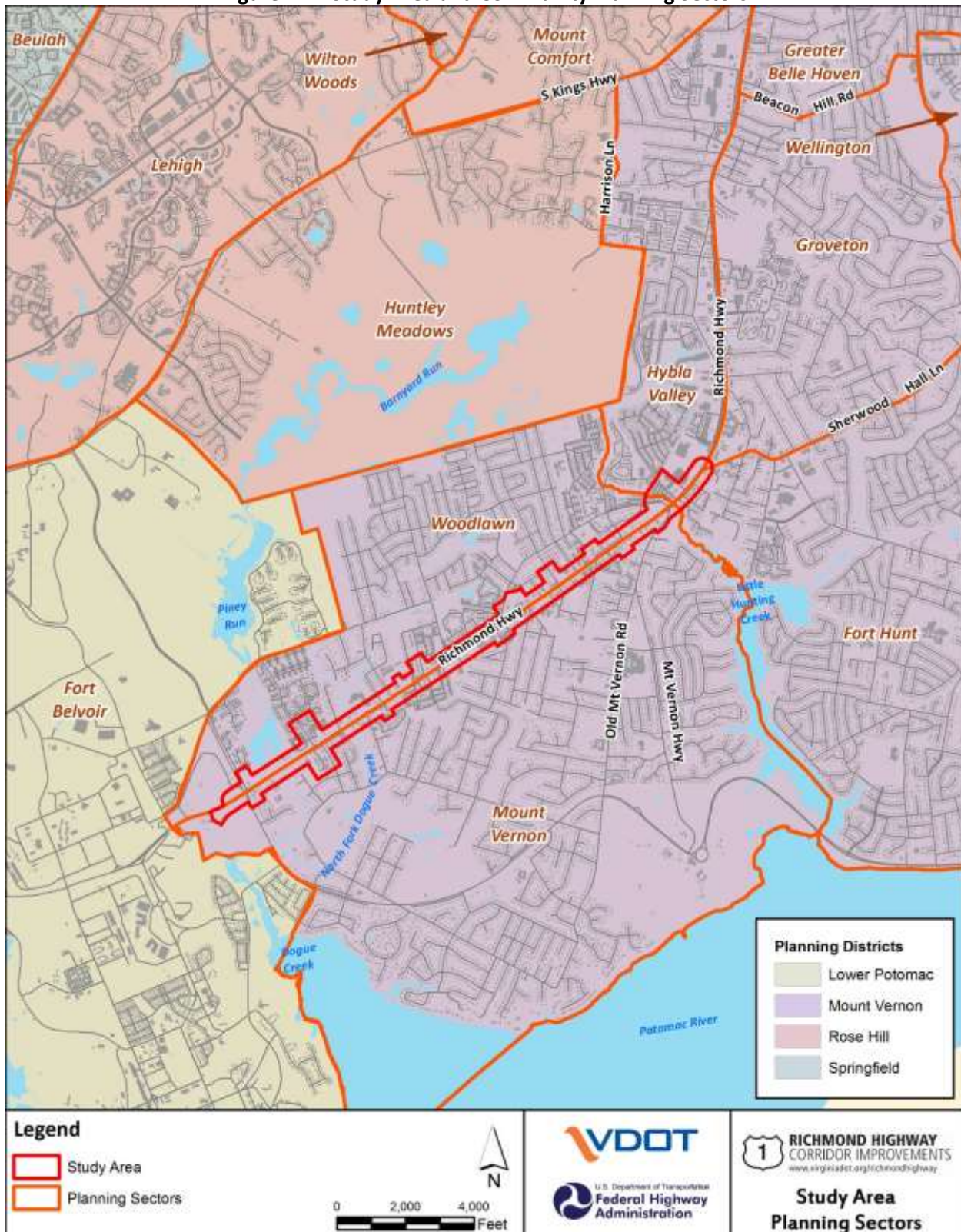


Figure 2-2: Study Area and Community Planning Sectors



The Mount Vernon Planning District's vision for future development is to "achieve the highest quality of life possible through expanding economic opportunity, access to quality education and public services, and through achieving balance between transportation and residential, commercial, and industrial growth" (Fairfax County, 2013a). The goals developed to support this vision are to:

- Preserve, capitalize, and enhance, to the extent possible, the great natural beauty and attractiveness of the important environmental and heritage resources of the Mount Vernon area;
- Promote the economic potential of the Richmond Highway Corridor as the gateway to the nation's capital and the historic heart of Fairfax County;
- Encourage an economically-balanced community with abundant high-tech, professional, and other employment opportunities; and
- Achieve a balance between transportation, residential, and commercial growth.

Planning Sectors

Within the Mount Vernon Planning District, the following Planning Sectors in the Study Area are considered "communities" for the purposes of this study: Mount Vernon, Woodlawn, Hybla Valley, Groveton, and Fort Hunt (**Figure 2-2**). These planning sectors are briefly described in the following paragraphs.

The **Mount Vernon Planning Sector** is geographically bound by Dogue Creek to the west, the Potomac River to the south, Little Hunting Creek to the east, and Richmond Highway to the north. Most of the Study Area along the south side of Richmond Highway is in this sector. Most of this sector contains single-family homes as well as some garden apartments, townhouses, and two small mobile home parks. In general, this sector is developed with few areas of undisturbed space with the area adjacent to Richmond Highway commercial, including a few apartment and townhouse developments. Most of the single-family homes are set back behind the commercial and higher-density housing areas fronting Richmond Highway. Signalized intersections providing direct access to the Mount Vernon Planning Sector from Richmond Highway in the Study Area include: Mount Vernon Memorial Highway, Cooper Road, Lukens Lane, Mohawk Lane, Reddick Avenue, and Mount Vernon Highway. Old Mount Vernon Road provides north-south movement within the sector. Mount Vernon Memorial Highway, in addition to Richmond Highway, provides east-west movement in the sector.

The **Woodlawn Planning Sector** is geographically bound by Fort Belvoir and Dogue Creek to the west, Richmond Highway to the south, Little Hunting Creek to the east, and Huntley Meadows Park to the north. Most of the Study Area along the north side of Richmond Highway is in this sector. A diverse mix of single-family homes, garden apartments, townhouses, condominiums, and commercial areas are in this sector. Like the other sectors discussed, the area adjacent to Richmond Highway is more commercial, interspersed with higher-density housing developments. Signalized intersections in the Study Area providing direct access to Woodlawn from the Richmond Highway include: Jeff Todd Way, Sacramento Drive, Frye Road, Buckman Road (south), Russel Road, Janna Lee Avenue, and Buckman Road (north). Richmond Highway is generally the only road providing continuous east-west connectivity in the sector.

The **Hybla Valley Planning Sector** is oriented north to south, paralleling the west side of Richmond Highway. It is geographically bound by Huntley Meadows Park to the west, Little Hunting Creek to the south, Richmond Highway to the east, and South Kings Highway to the north. Only a small portion of the Study Area north of Richmond Highway from Little Hunting Creek to approximately Sherwood Hall Lane is in this sector. As with the other sectors discussed, commercial and higher density housing fronts Richmond Highway. In the southern part of this sector, nearest the Study Area, is a large mobile home

park behind the commercial development lining Richmond Highway. Continuing north-northeast behind the commercial frontage along the Richmond Highway are large apartment complexes and single-family subdivisions as well as some private recreation sites. Signalized intersections providing access to Hybla Valley from Richmond Highway include: Ladson Lane (in the Study Area), Fordson Road, Lockheed Boulevard, Collard Street, Memorial Street, Southgate Drive, and South Kings Highway. Richmond Highway is the only road providing north-south movement throughout Hybla Valley.

The **Groveton Planning Sector** is geographically bound by Richmond Highway to the west, Sherwood Hall Lane to the south, Fort Hunt Road to the east, and Beacon Hill Road to the north. Only a small portion of the northern Study Area extends into this sector along the south side of Richmond Highway at the Sherwood Hall Lane intersection. This sector contains single-family homes, townhomes, apartments, and a mobile home park. The townhome, apartment, and mobile home communities are located adjacent to Richmond Highway while the single-family homes are further away from the roadway. The portion of the Groveton Planning Sector within the Study Area is composed of a small commercial center at the intersection of Richmond Highway and Sherwood Hall Lane. Signalized intersections providing direct access to Groveton from Richmond Highway include: Sherwood Hall Lane (in the Study Area), Fordson Road, Boswell Avenue, Arlington Drive, Dart Drive, Popkins Lane, Memorial Street, and Beacon Hill Road. Fort Hunt Road, in addition to Richmond Highway, provides north-south movement in the eastern side of Groveton.

The **Fort Hunt Planning Sector** is geographically bound by Little Hunting Creek and Richmond Highway to the west, the Potomac River to the south, Fort Hunt Road to the east, and Sherwood Hall Lane to the north. Only a small portion of the Study Area extends into this sector along the south side of Richmond Highway from Little Hunting Creek to approximately the Sherwood Hall Lane intersection. Most of this sector contains single-family homes as well some garden apartments along Richmond Highway and several townhouse developments. An apartment community is located adjacent to Richmond Highway while the remainder of the Fort Hunt Planning Sector residential areas are further southeast. The portion of Fort Hunt within the Study Area is small, consisting of an apartment community, a portion of Little Hunting Creek Park, a church, and a small commercial building. The only signalized intersection providing access to Fort Hunt from Richmond Highway in the Study Area is Sherwood Hall Lane. Further to the east, Fort Hunt Road provides north-south movement throughout this sector. Collingwood Road provides east-west movement creating a northern area and southern area of the Fort Hunt Planning Sector.

Existing Barriers to Community Cohesion

The major roads traversing the Study Area are Richmond Highway (US Route 1), Jeff Todd Way, Mount Vernon Memorial Highway (VA 235), Frye Road, Buckman Road, Mount Vernon Highway (VA 235), and Sherwood Hall Lane (VA 626) (**Figure 1-1**). The Richmond Highway forms part of the boundaries of the planning sectors described above. Over time, widening of the Richmond Highway and associated frontage roads has incrementally separated the adjacent communities to either side. Pedestrian and bicycle access across Richmond Highway in the Study Area is limited to the following signalized crossings:

- Mount Vernon Memorial Highway (VA 235)/Jeff Todd Way
- Cooper Road
- Luken Lane

- Frye Road
- Mohawk Lane
- Russel Road
- Janna Lee Avenue

This limits the accessibility of communities across Richmond Highway.

In 2015, Fairfax County launched the Embark Richmond Highway study to create a multimodal future for the Richmond Highway Corridor. This long-term, ongoing study would, among other things, provide more detailed guidance in the Comprehensive Plan for the implementation of transit in the corridor. The Comprehensive Plan Amendment process is considering land use density and mix for areas within one-half mile of proposed BRT stations along the Richmond Highway, as well as corridor-wide transportation systems, urban design, public facilities and other elements supportive of BRT, including within the current Study Area.

2.1.3 Environmental Consequences

The **No-Build Alternative** would include routine maintenance and repairs of existing Richmond Highway in the Study Area that would have no direct physical impact on communities. Therefore, in the absence of the Build Alternative improvements, increasing travel demand, congestion, inadequate access control, and inadequate pedestrian and bicycle facilities along Richmond Highway would increasingly hamper community mobility and connectivity. In addition, the No-Build Alternative would not provide median space for future BRT pursuant to the DRPT Multimodal Study / Fairfax County Board of Supervisors Resolution.

The **Build Alternative** would potentially require displacing 17 housing units from six residential parcels, 46 commercial buildings on 32 parcels, and two community facilities on two total acquisition parcels (**Figure 2-3** and **2-4; Table 2-1**). As design advances, potential displacements could be reduced. Although total parcel acquisitions could be required under the Build Alternative, the potentially affected properties are located along the edge of the communities adjacent to Richmond Highway, lessening potential impacts to community cohesion. The proposed displacements would be mainly distributed in the Woodlawn and Mount Vernon communities in the Study Area.

Property acquisition and potential displacements would be conducted in accordance with all applicable federal laws, regulations and requirements, including but not limited to, 23 CFR §710, the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended and its implementing regulations found in 49 CFR §24. Relocation resources would be available to all displaced residents and businesses without discrimination. Temporary construction easements are anticipated to have minimal community cohesion impacts as such easements would be for short-term use and the land would not be permanently converted to transportation use.

Figure 2-3: Parcels with Potential Relocations in the South Study Area

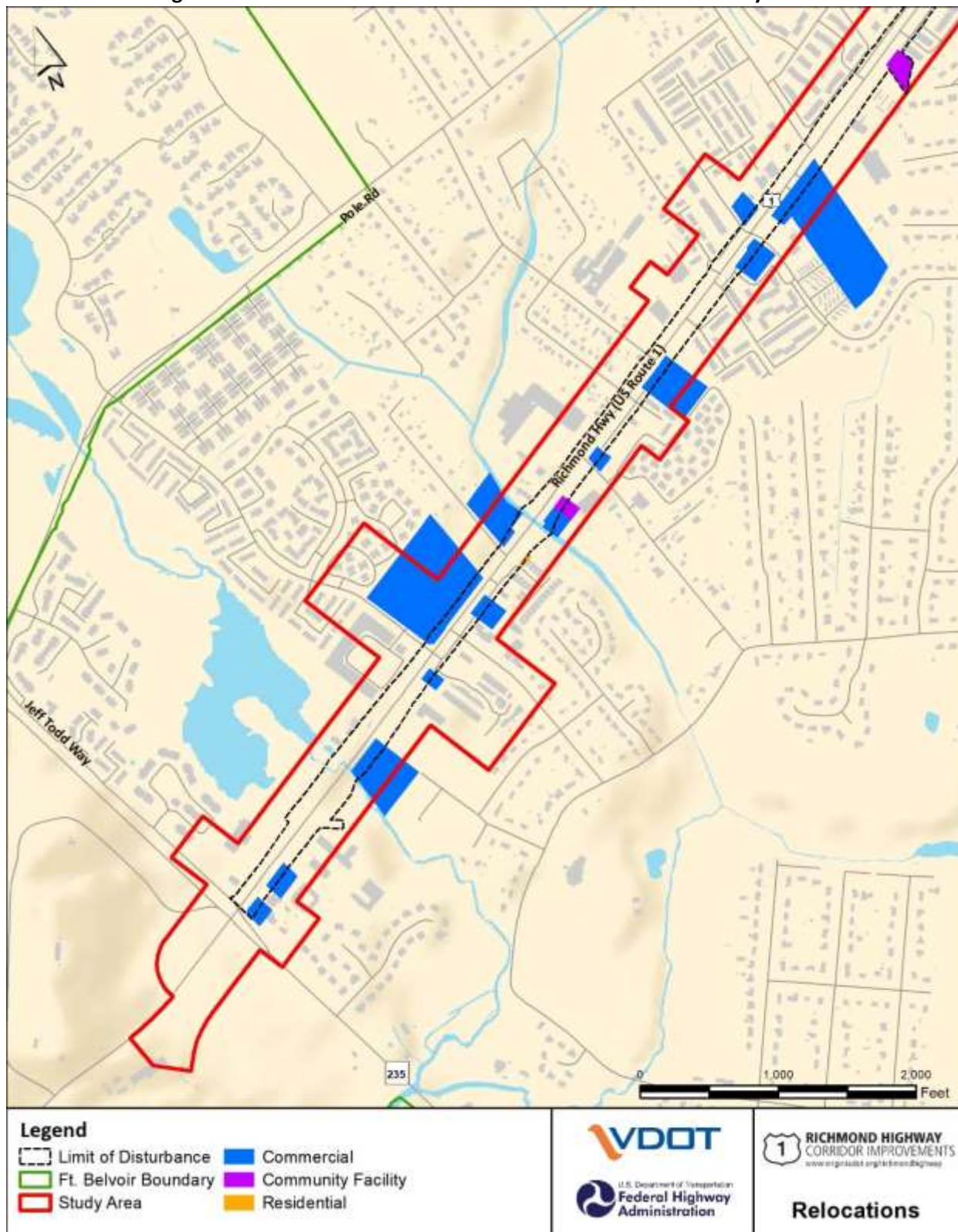


Figure 2-4: Parcels with Potential Relocations in the North Study Area

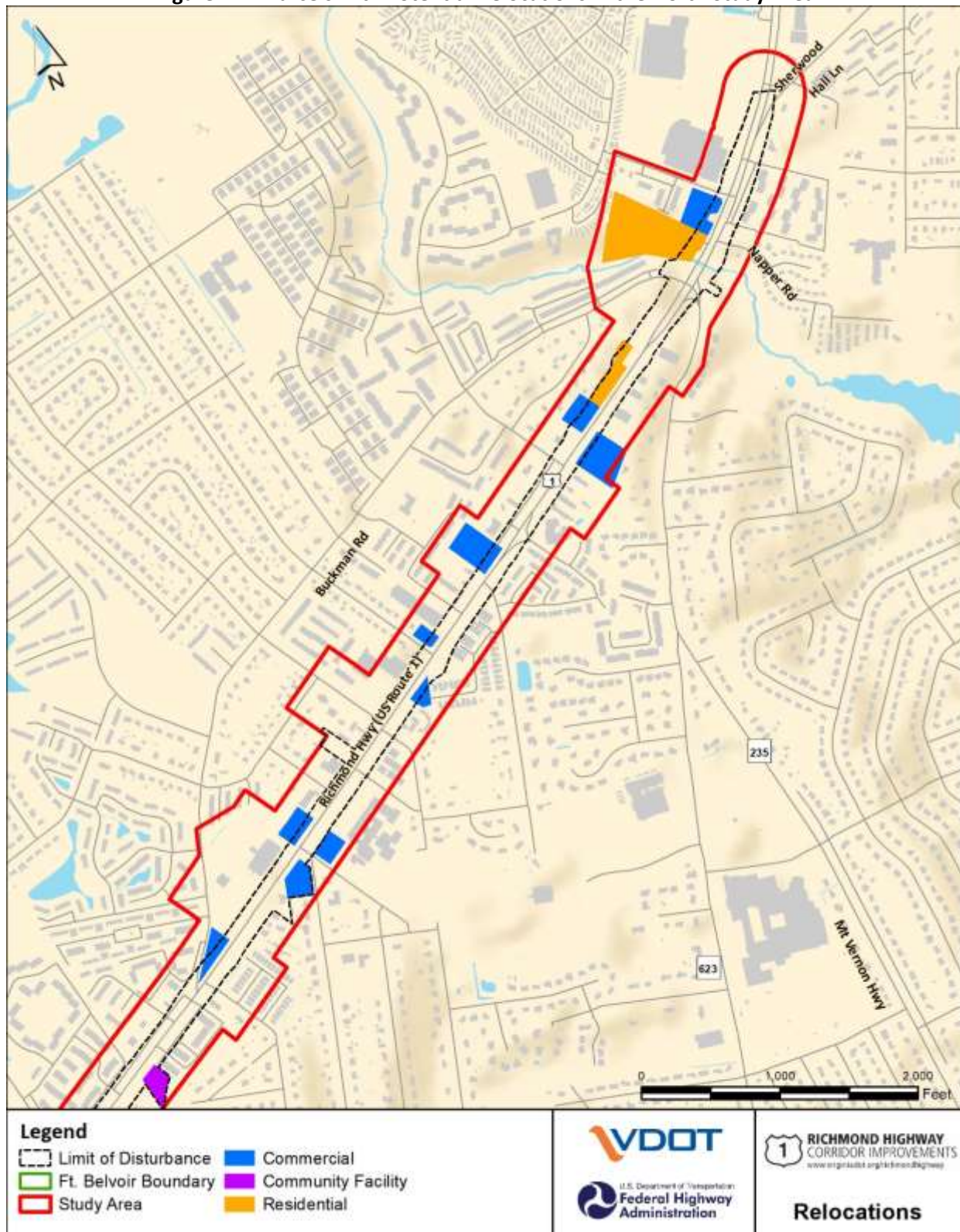


Table 2-1: Build Alternative Estimated Total Parcel Acquisitions

Parcel Type	Total Parcels with Displacements	Displaced Housing Units/Buildings
Residential	6	17
Commercial	32	46
Community Facility	2	2

Access control measures would be implemented including adequately spaced signalized intersections and left-turn lanes where needed.

The **Build Alternative** is located along an existing corridor and would not create a new physical barrier to inter-community interaction or cause adverse impacts to community connectivity or cohesion. Although the distance across Richmond Highway would become incrementally wider, improved pedestrian and bicycle facilities would provide better connectivity between adjacent neighborhoods than exists today. Comments received from agency coordination and public involvement included safety concerns from reducing access to side roads, and eliminating frontage roads providing access to law enforcement and emergency response when traffic jams occur on the Richmond Highway mainline. Preliminary design was revised to provide signalized intersections and emergency access in the median where needed.

Short-term impacts to community cohesion could occur during construction from increased noise, dust, traffic detours, and temporary road closures. These potential effects would be minimized as much as practicable with measures such as controlling dust by spraying water on exposed soil, and planting temporary vegetation to reduce dust. Traffic detours and road closures would be temporary and short-term, limiting impacts to community cohesion.

2.2 COMMUNITY FACILITIES

2.2.1 Methodology

Community facilities considered and identified within the Study Area include cemeteries, fire stations, medical facilities, libraries, police stations, post offices, religious facilities, schools/universities, publicly-owned parks, and outdoor recreational facilities. Community facilities and access data for community facilities in the Study Area are based on Fairfax County's Geographic Information System (GIS) data and Google Maps. Recreational trails and bike paths are discussed in **Section 2.3**.

2.2.2 Existing Conditions

Twenty-four community facilities are within the Study Area. Of these, four are schools, one is a post office, four are parks, eight are religious institutions, five are community centers and/or non-profits, and two are government buildings. **Figure 2-5** shows the location of the facilities and **Table 2-2** lists these community facilities by type and describes roadway and transit access. These facilities provide services to communities and neighborhoods in and around the Study Area. The South County Health Center and Mount Vernon District Office of the Fairfax County Health Center are housed within the South County Government Center. Within the Study Area, 12 community facilities are in Mount Vernon Planning Sector, nine in Woodlawn Planning Sector, one in Fort Hunt Planning Sector, one in both Fort Hunt and Mount Vernon Planning Sectors, and one facility is in both the Woodlawn and Mount Vernon Planning Sectors. There were no community facilities identified in the Study Area portion of Hybla Valley or Groveton Planning Sectors.

Figure 2-5: Community Facilities in the Study Area

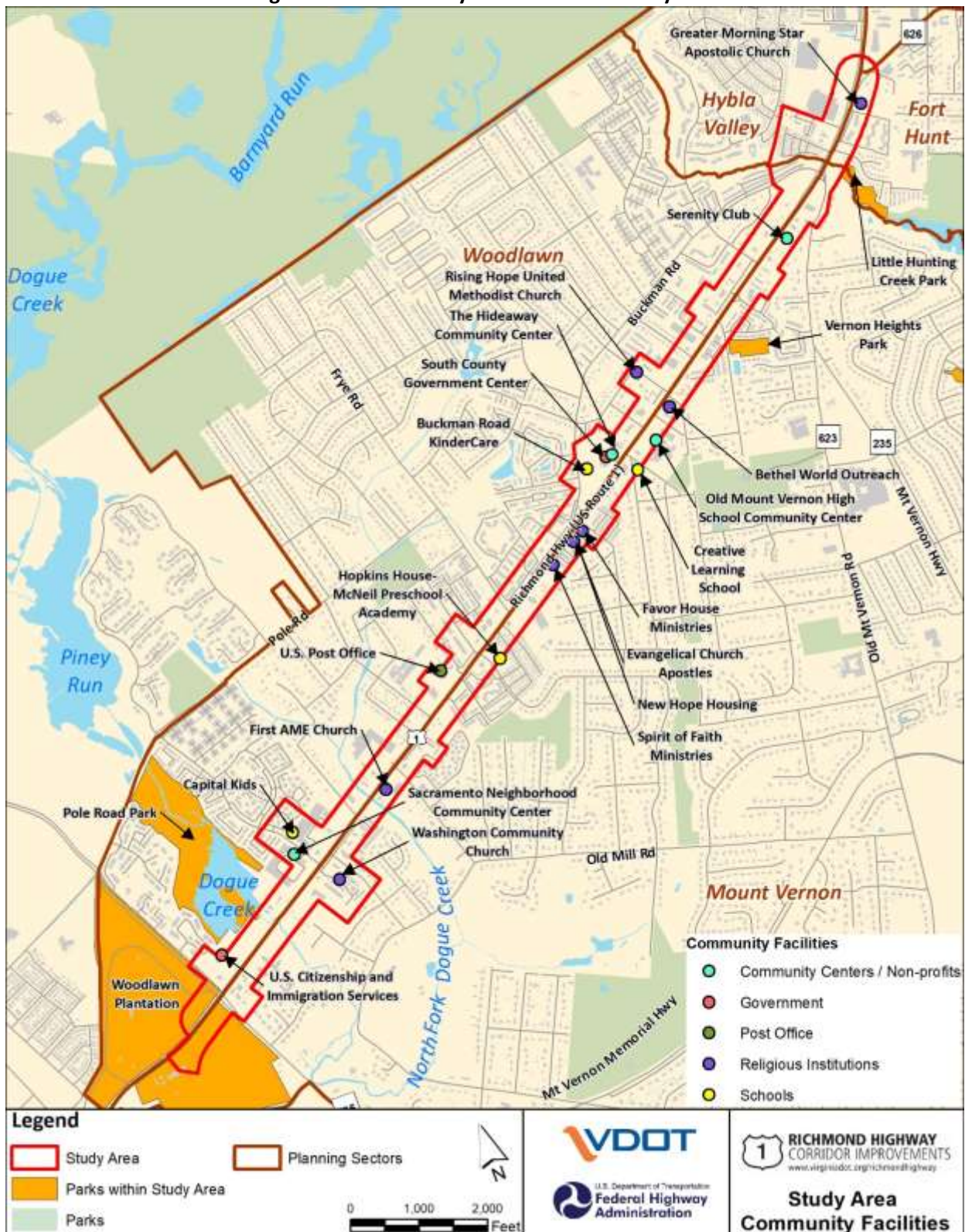


Table 2-2: Community Facilities

Facility	Address/Community	Access	Transit Access
Schools			
Creative Learning School	8331 Washington Avenue / Mount Vernon	Access from Richmond Highway via driveways at Mohawk Lane and Washington Avenue	Richmond Highway Express (REX) and Route 171 bus routes provide direct access at Richmond Highway/Mohawk Lane (500 ft). Route 171 provides proximal access at Richmond Highway/Gregory Drive (600 ft)
Buckman Road KinderCare	4287 Buckman Road / Woodlawn	Access from Richmond Highway via driveway at Buckman Road	REX and Route 171 bus routes provide proximal access at Richmond Highway/Mohawk Lane (0.3 mi).
Hopkins House-McNeil Preschool Academy	8543 Forest Place / Mount Vernon	Access from Richmond Highway via driveways off Forest Place	Route 171 bus route provides direct access at Richmond Highway and: Sky View Drive (500 ft), Forest Place (500 ft), and Frye Road (1,000 ft). Woodlawn Court, Cooper Road, Talbot Farm Drive, and Sacramento Drive. REX provides proximal access at Richmond Highway and Cooper Road and Sacramento Drive. Route 151 and Route 152 bus routes provide proximal access at Sacramento Drive and Richmond Highway.
Capital Kids Preschool and Learning Center	8758 Richmond Highway / Woodlawn	Access from Richmond Highway via driveway off Sacramento Drive	Route 151 and Route 152 bus routes provide direct access at Sacramento Drive/Richmond Highway (400 ft northwest). Route 171 provides direct access at Richmond Highway/Cooper Road (200 ft). REX provides direct access at Sacramento Drive/Richmond Highway (300 ft).
Post Office			
Engelside United States Post Office	8588 Richmond Highway / Woodlawn	Access from northbound and southbound Richmond Highway, via right-hand turn and left-hand turn lane at the intersection with Wyngate Manor Court	Route 171 bus route provides proximal access at Richmond Highway and: Highland Lane, Skyview Drive, and Forest Place (all approximately 600-700 ft).
Parks and Recreation			

Facility	Address/Community	Access	Transit Access
Little Hunting Creek Park	Richmond Highway/George Washington Memorial Parkway / Fort Hunt & Mount Vernon	No access from Richmond Highway; no parking areas and access to the Park via Napper Road.	REX and Routes 171, 151, and 152 provide proximal access at Richmond Highway/Ladson Lane (700 ft)
Vernon Heights Park	8225 Central Avenue / Mount Vernon	No parking areas; access to park via trails off Shannons Green Way, Central Avenue, and Drews Court	Route 171 provides proximal access at Richmond Highway/Roxbury Drive (600 ft) and Richmond Highway/Shannons Green Way (1,000 ft). Route 151/152 provides proximal access at Mount Vernon Memorial Highway/ Albee Lane (0.4 mi).
Pole Road Park	5701 Pole Road / Woodlawn	No access from Richmond Highway. No parking areas; access to park via Woodlawn Green Drive and Shadwell Court (located in neighborhood off Jeff Todd Way)	Routes 171, 151, and 152 provide proximal access at Richmond Highway/Mount Vernon Memorial Highway (800 ft). Routes 151 and 152 provide proximal access at Pole Road/Sacramento Drive (0.25 mi).
Woodlawn Plantation	9000 Richmond Highway / Woodlawn & Mount Vernon	Driveway off Richmond Highway	Route 171 provides proximal access at Richmond Highway /Woodlawn Road (0.5 mi). Routes 101, 151, and 152 provide proximal access at Mount Vernon Memorial Highway/Richmond Highway (1 mi). REX, Route 171, and Route 151 provide proximal access at Richmond Highway/Old Mill Road (1 mi). REX, Route 171, and Route 152 bus routes provide proximal access at Richmond Highway/Mount Vernon Memorial Highway (1.1 mi).
Religious Institutions			
First AME Church	8653 Richmond Highway / Mount Vernon	Parking area adjacent to northbound Richmond Highway; no direct access from southbound Richmond Highway	REX and Route 171 bus routes provide proximal access at Richmond Highway/Lukens Lane (1,000 ft). Route 171 provides proximal access at Richmond Highway/Woodlawn Court (1,000 ft).
Spirit of Faith Ministries	8431 Richmond Highway / Mont Vernon	Parking area adjacent to northbound Richmond Highway; center turn lane for access from southbound Richmond Highway	REX and Route 171 bus routes provide proximal access at Richmond Highway/Frye Road (1,000 ft). Route 171 provides proximal access at Richmond Highway/Buckman Road (800 ft), Richmond Highway/Brevard Court

Facility	Address/Community	Access	Transit Access
			(600 ft), and Richmond Highway/Graves Street (200 ft).
Evangelical Church Apostles	8401 Richmond Highway / Mount Vernon	Parking area with access from northbound and southbound Richmond Highway via signalized intersection at Buckman Road	Route 171 provides direct access at Richmond Highway/Buckman Road (100 ft) and Richmond Highway/Brevard Court (300 ft). Route 171 provides proximal access at Richmond Highway/Graves Street (0.2 mi).
Favor House Ministries	8400 Radford Avenue / Mount Vernon	Parking area with access from Radford Avenue or Richmond Highway via signalized intersection at Buckman Road	Route 171 provides direct access at Richmond Highway/Buckman Road (100 ft).
Rising Hope Mission Church	8220 Russell Rd / Woodlawn	Parking area on all three sides of the building with access from Russell Rd (additional parking at the Aldi's supermarket shopping center across the street)	Routes 151 and 152 provide proximal access at Buckman Road/Russell Road (1,000 ft). Route 171 provides proximal access at Russell Road/Richmond Highway (1,000 ft).
Bethel World Outreach Church	8305 Richmond Highway / Woodlawn	Parking area with access from Reddick Ave and Maury Pl	Route 171 provides proximal access at Richmond Highway/Russell Road (500 ft). Routes 151 and 152 provide proximal access at Buckman Road/Russell Road (0.4 mi).
Greater Morning Star Apostolic Church	7929 Richmond Highway / Fort Hunt	Parking area is directly adjacent to northbound Richmond Highway access from Northbound Richmond Highway. No direct access from Southbound Richmond Highway	Routes 151, 152, 161, 162, and 171 provide proximal access at Richmond Highway/Sherwood Hall Lane (1,000 ft). Routes 151, 152, 171 and REX provide proximal access at Richmond Highway/Ladson Lane (1,000 ft).
Washington Community Church	8800-C Pear Tree Village Court / Mount Vernon	Parking area with access from Richmond Highway/Pear Tree Village Ct and Cooper Road/Pear Tree Village Ct.	REX and Route 171 bus routes provide proximal access at Cooper Road/Richmond Highway (800 ft). REX and Routes 171, 151, and 152 provide proximal access at Sacramento Drive/Richmond Highway (1,000 ft).
Government			
South County Government Center/South County Health Center/Mount	8350 Richmond Highway / Woodlawn	Access via Richmond Highway at Mohawk Lane intersection as well as access via driveway from Buckman Road	REX and Route 171 bus routes provide direct access at Richmond Highway/Mohawk Lane (200 f.). Route 171 bus route provides

Facility	Address/Community	Access	Transit Access
Vernon District Office Fairfax County Health Services			proximal access at Richmond Highway/Gregory Drive (500 ft).
United States Citizenship and Immigration Services – Application Support Center	8850 Richmond Highway Suite 100 / Woodlawn	Parking area with access via southbound Richmond Highway as well as access via Jeff Todd Way	REX, Route 171, and Route 151 provide direct access at Richmond Highway/Old Mill Road (500 ft). REX, Route 152, and Route 171 provide proximal access at Richmond Highway/Mount Vernon Memorial Highway (500 ft). Route 101, Route 152, and Route 151 provide proximal access at Mount Vernon Memorial Highway/Richmond Highway (0.25 mi).
Community Centers / Non-profits			
Sacramento Neighborhood Community Center (non-profit)	8792 Sacramento Dr Suite E	Access off Richmond Highway at Sacramento Center as well as driveway via Sacramento Drive	REX and Route 171 bus routes provide direct access at Richmond Highway/ Sacramento Drive (285 ft).
Serenity Club Inc (non-profit AA)	8121 Richmond Highway / Woodlawn	Parking area with access via Route 1	Route 171 provides proximal access at Richmond Highway/Buckman Road (1100 ft) and Richmond Highway/Jama Lee Ave (800 ft).
New Hope Housing Inc.	8407 Richmond Highway E / Mount Vernon	Limited parking with access via Route 1	Route 171 provides proximal access at Richmond Highway/Graves Street (700 ft) and Richmond Highway/Brevard Ct (500 ft).
Old Mount Vernon High School Community Center	8333 Richmond Highway / Mount Vernon	Access from northbound and southbound Richmond Highway, via driveways off Maury Place, Mohawk Lane, Reddick Avenue, and small parking area adjacent to Richmond Highway northbound	Route 171 provides direct access at Richmond Highway/Gregory Drive (400 ft) and Richmond Highway/Mohawk Lane (800 ft). REX provides direct access at Richmond Highway/Mohawk Lane (800 ft).
Hideaway Teen Center	8350 Richmond Highway / Woodlawn	Access via Richmond Highway at Mohawk Lane intersection as well as via driveway from Buckman Road	REX and Route 171 bus routes provide direct access at Richmond Highway/ Mohawk Lane (200 ft). Route 171 bus route provides proximal access at Richmond Highway and Gregory Drive (500 ft).

2.2.3 Environmental Consequences

The **No-Build Alternative** would include routine maintenance and repairs of the existing Richmond Highway and have no direct physical impact on community facilities in the Study Area. Continued

congestion, reduced mobility, and inadequate pedestrian and bicycle facilities would result in decreased accessibility to community facilities.

The **Build Alternative** would improve access to community facilities by reducing congestion, improving safety, enhancing pedestrian and bicycle facilities, and providing median space for future BRT along Richmond Highway in the Study Area as called for in the DRPT Multimodal Study / Fairfax County Board of Supervisors Resolution. Short-term impacts to community facilities could include temporary road closures, changes to travel patterns, temporary reductions in parking, and traffic detours during construction.

Two of the 24 community facilities in the Study Area would potentially be relocated due to right-of-way acquisition, namely, First AME Church and Spirit of Faith Ministries in the Mount Vernon Community. Portions of right-of-way could be acquired from seven other community facility parcels, with a majority of the impacts being sliver takes along the edge of the parcel and/or otherwise would not preclude access to or the primary use of these facilities. Religious institutions' service times and funeral processions could be impacted during construction; however, these impacts would be temporary in nature and would cease upon completion of construction. Every effort would be made to reduce right-of-way impacts to adjacent properties during the design process. Property acquisition and potential community facility relocations would be conducted in accordance with all applicable federal laws, regulations and requirements, including but not limited to, 23 CFR § 710, the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended and its implementing regulations found in 49 CFR § 24. All persons displaced on federally-assisted projects would be treated fairly, consistently, and equitably. Relocation resources would be available to all impacted community facilities without discrimination.

2.3 BIKE PATHS AND RECREATIONAL TRAILS

2.3.1 Methodology

Community recreational facilities like bike paths and recreational trails are potentially impacted by roadway improvements from acquisition of right-of-way, and temporary or permanent impacts to access. Bike paths and recreational trails within the Study Area are identified based on Fairfax County GIS and planning documents.

2.3.2 Existing Conditions

No bike lanes, shared use paths or cycle tracks as defined by Fairfax County are present in the Study Area along Richmond Highway (Fairfax County, 2014). However, bike routes as designated by Fairfax County (recommended routes for the safest cycling from point A to point B) exist within the Study Area on local streets and along Richmond Highway (**Table 2-3 and Figure 2-6**). Per the *Fairfax County Bicycle Master Plan (2014)*, a bike lane and shared use path are recommended along most of Richmond Highway in the Study Area. Bike lanes are also recommended along Pole Road and Old Mount Vernon Road. Shared-lane bike facilities (roadways marked with street paint where bikes should preferably cycle when sharing a street) are recommended at Lukens Lane, Cooper Road, Laurel Road, Radford Avenue, Frye Road, and portions of Buckman Road. The county's *Bicycle Masterplan* also recommends cycle tracks (dedicated bicycle facilities physically separated from motor vehicle and pedestrian traffic) along Richmond Highway along portions of the Study Area. Certain portions of the Richmond Highway in the Study Area are identified by the county as "Policy Roads" where selection of bicycle facilities should be coordinated with other planning decisions regarding a roadway's capacity and operation as well as the type and configuration of development alongside it (**Figure 2-6**).

Table 2-3: Bike Routes in the Study Area

Type	Location	Access
Bike Route	Buckman Road	From intersection with Richmond Highway north to intersection with Richmond Highway and Mount Vernon Highway
Bike Route	Frye Road	From Richmond Highway north to Pole Road
Bike Route	Mount Vernon Memorial Highway	From Richmond Highway to Mount Vernon Estates and Gardens
Bike Route	Napper Road	From Richmond Highway south to cul-de-sac
Bike Route	Jeff Todd Way	From Richmond Highway north to Pole Road
Bike Route	Radford Avenue	From Richmond Highway south to Jackson Place
Bike Route	Richmond Highway	Along Richmond Highway through Study Area
Bike Route	Sherwood Hall Lane	From Richmond Highway east to Fort Hunt Road

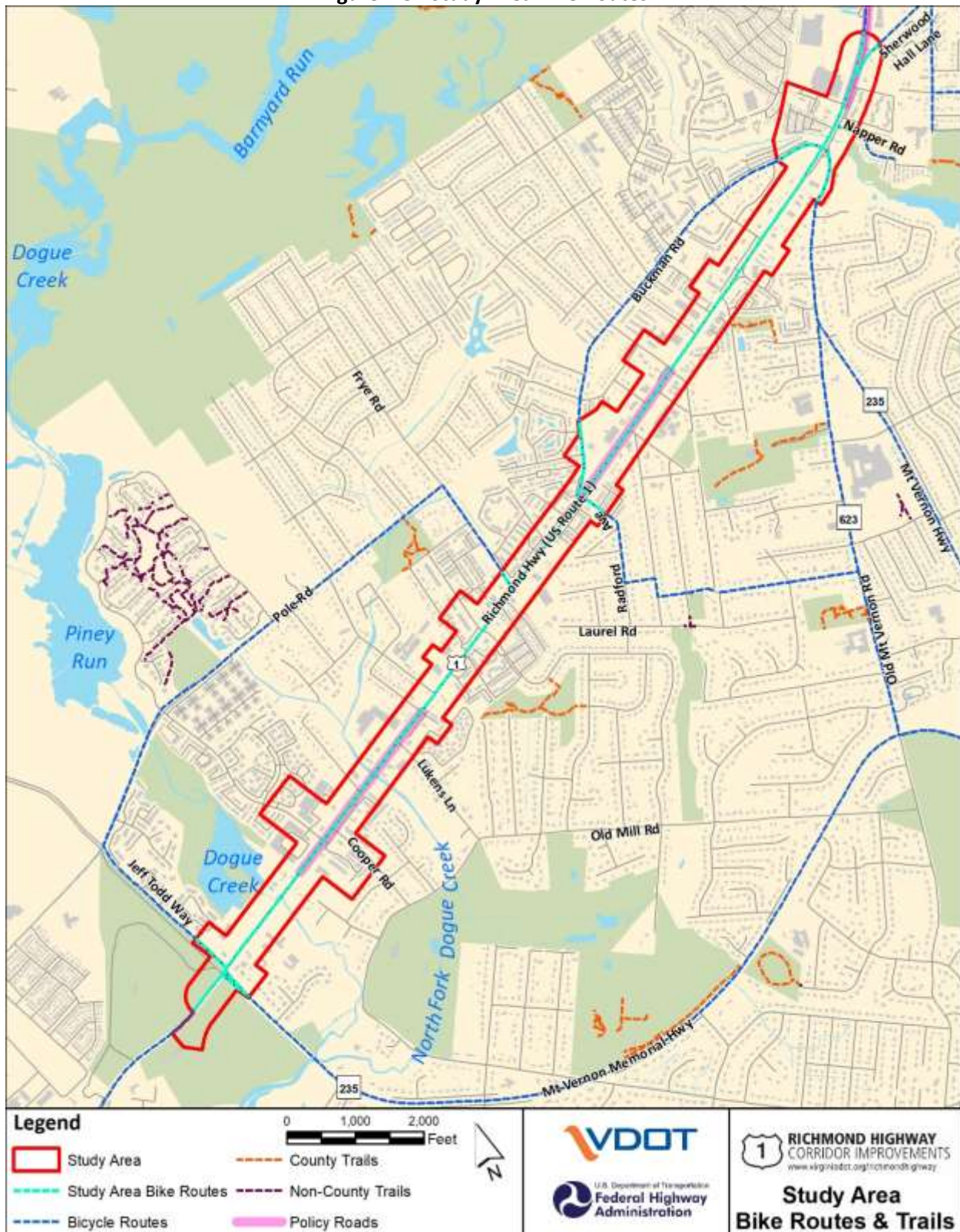
(Fairfax County, 2014 and 2016a)

2.3.3 Environmental Consequences

As the **No-Build Alternative** would not result in improvements to Richmond Highway in the Study Area, no changes to existing bike lanes and/or bike routes would result.

The **Build Alternative** would benefit pedestrian and bicycle facilities in the Study Area by providing enhanced facilities to both sides of Richmond Highway and pedestrian underpasses at Dogue Creek and Little Hunting Creek bridges. These improvements would increase transportation safety by separating pedestrian and bicycle traffic from the roadway travel lanes. Further, the Build Alternative improvements would provide more connections to the limited existing and planned pedestrian and bicycle networks in the Study Area and within Fairfax County. The proposed improvements would benefit both commuter and recreational bicyclists. Bicyclists using the shoulders or travel lanes (bike routes) along Richmond Highway within the direct impact area of the Build Alternative would be affected during construction. Short-term impacts to existing pedestrian facilities and bike routes along Richmond Highway during construction could include detours and temporary closures.

Figure 2-5: Study Area Bike Routes



The proposed underpasses at Dogue Creek and Little Hunting Creek would provide a one-stage crossing of the newly widened Richmond Highway for pedestrians. The underpasses would also connect to future recreational trails planned by Fairfax County. VDOT conducted an online survey in March and April of 2019 requesting whether respondents would use pedestrian underpasses at the Dogue Creek and Little Hunting Creek crossings, and if not, to please provide an explanation (see **Appendix A**). For Little Hunting Creek, 221 respondents indicated they would use the pedestrian underpass, while 15 said no and 125 provided explanations of why not. At Dogue Creek, 226 respondents said they would use a pedestrian underpass there, 19 said no, and 113 people provided explanations. The primary reasons for not using either pedestrian underpass were security concerns related to personal safety, potential increased crime, vandalism, unsanitary conditions, encouraging camping, maintenance issues (snow removal, litter, flooding), expense, potential lack of use, and bicyclists would have to dismount to use them.

The alternative routes for pedestrians opting not to use the proposed underpass at Dogue Creek, the nearest signalized crosswalk on the south side of the Dogue Creek Crossing would be approximately 800 feet away at the Mount Vernon Memorial Highway (VA 235) / Jeff Todd Way intersection, or 1,500 feet north of the bridge at the realigned Sacramento Drive intersection. Similarly, the nearest pedestrian signalized crosswalks to the Little Hunting Creek bridge would be approximately 150 feet away to the Mount Vernon Highway (VA 235) / Buckman Road intersection to the south, or 330 feet north to Ladson Lane.

Fairfax County Department of Transportation has committed to providing 24-hour security, lighting, a call box, trash receptacles, and increased police patrols, along with ongoing maintenance. These measures would address many community concerns and mitigate the potential safety effects of the underpasses. Coordination with concerned organizations and county officials is ongoing and additional design changes to the proposed pedestrian underpasses may occur during advanced design. VDOT and Fairfax County Department of Transportation will ensure the community is heard, continuing ongoing outreach and providing additional meeting opportunities to discuss the potential underpasses with local residents.

3. POPULATION CHARACTERISTICS AND ENVIRONMENTAL JUSTICE

3.1 POPULATION AND HOUSING CHARACTERISTICS

3.1.1 Methodology

Demographic and housing characteristics are identified based on 2010 US Decennial Census data and the American Community Survey (ACS) 5-year (2011-2015) data available online at American Factfinder¹. Data was gathered for the Census block groups wholly or partially within the Study Area and compared to Fairfax County and Virginia.

3.1.2 Existing Conditions

Population

According to 2010 US Decennial Census data, the population of the Census block groups in the Study Area is approximately 30,934 persons (2.9 percent of Fairfax County population and less than 1.0 percent of Virginia population). **Table 3-1** summarizes the study Census block group populations and compares the total population to that of Fairfax County and Virginia. **Figure 3-1** shows the study Census block group boundaries. Census block group 4215.00 BG 2 is the most populated (3,028 persons) and located in the

¹ <http://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>

northwest end of the Study Area adjacent to Richmond Highway. Census block group 4154.02 BG 3 has the lowest population (1,013 persons) within the study area and is located across Richmond Highway from the most populated census block in the northeast end of the Study Area.

Housing

Available housing within the Study Area Census block groups ranges from single-family homes and townhouses to apartments and mobile homes. **Table 3-2** summarizes the housing characteristics in the Study Area Census block groups compared to Fairfax County and Virginia. An estimated 11,424 housing units are in the Study Area Census block groups. Of those, 10,615 (92.9 percent) are occupied. Census block group 4160.00 BG 2 has the most occupied housing units (1,225) and Census block group 4154.02 BG 3 has the least (382); the former is in the Woodlawn community and the latter is in Groveton. Within the Study Area Census block groups, 52.2 percent of the occupied units are owned, and the other 47.8 percent are rented. In comparison, Fairfax County has a 67.7 percent owner occupancy rate and Virginia has a 66.2 percent owner occupancy rate. Census block group 4159.00 BG2 in the Mount Vernon community has the highest owner occupancy rate (91.3 percent) while 4155.00 BG 4 in Fort Hunt has the lowest (10.0 percent). Fairfax County accounts for 12.0 percent of the total statewide housing units.

Table 3-1: Study Area Block Groups Population

Geographic Areas/Block Groups	Total Population	Community	Percent of Study Block Groups Total Population
4154.02 BG 3	1,013	Groveton	3.3%
4155.00 BG 4	1,459	Fort Hunt	4.7%
4159.00 BG 2	2,224	Mount Vernon	30.7%
4160.00 BG 1	1,679	Mount Vernon	
4160.00 BG 2	3,047	Mount Vernon	
4161.00 BG 1	2,535	Mount Vernon	
4215.00 BG 2	3,028	Hybla Valley	15.9%
4215.00 BG 3	1,884	Hybla Valley	
4216.00 BG 2	2,026	Woodlawn	45.5%
4216.00 BG 3	1,631	Woodlawn	
4217.01 BG 1	2,966	Woodlawn	
4217.01 BG 2	1,580	Woodlawn	
4218.00 BG 1	1,965	Woodlawn	
4218.00 BG 2	2,608	Woodlawn	
4218.00 BG 3	1,289	Woodlawn	
Study Block Groups Total	30,934	N/A	100% ¹
Fairfax County	1,081,726		
Virginia	8,001,024		

(US Census Bureau, 2010)

¹due to rounding totals to 100.1%

Figure 3-1: Study Area Census Block Groups

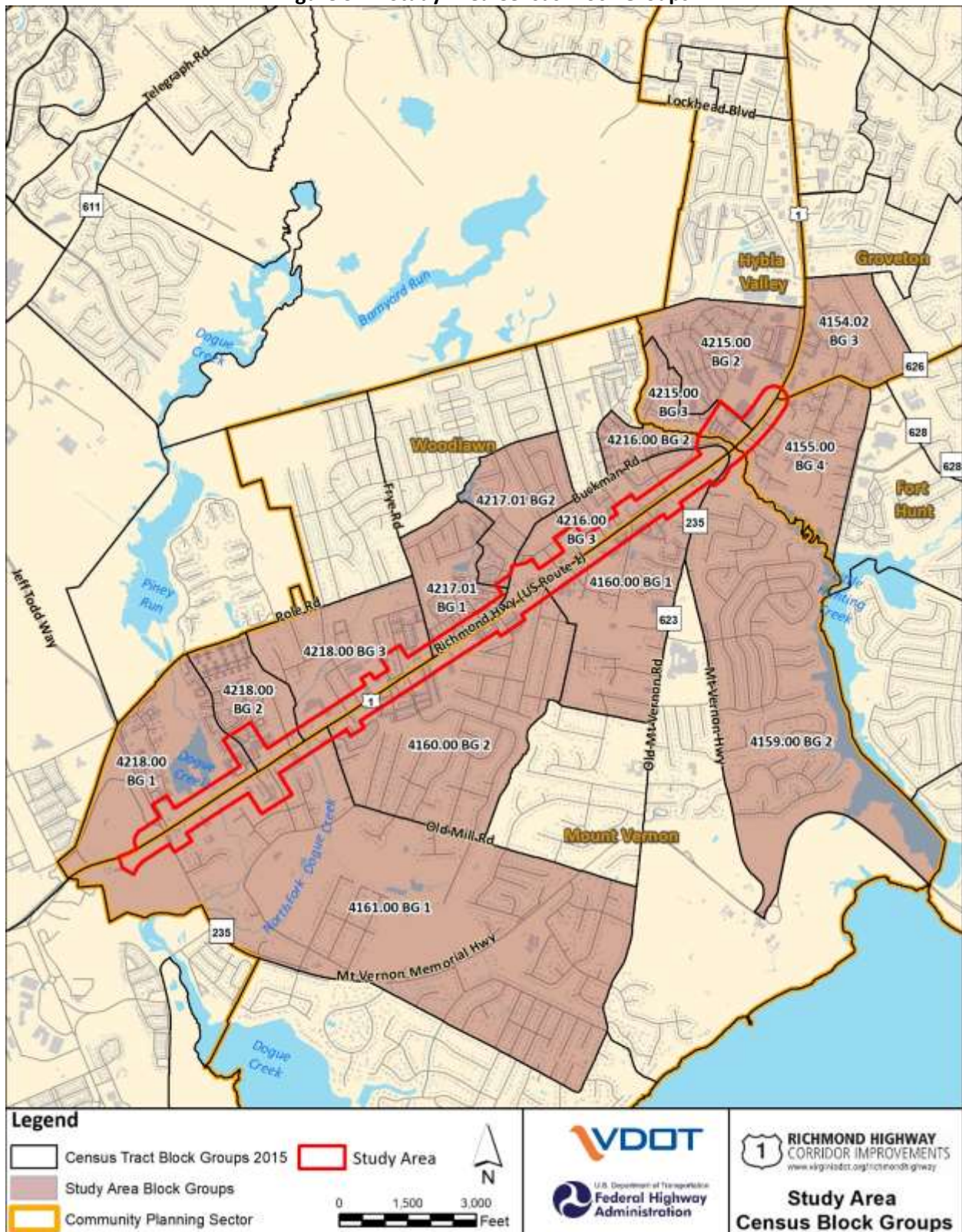


Table 3-2: Study Block Group Housing Characteristics (ACS 5-Year 2011-2015)

Geographic Areas / Block Groups	Total Units	Total Occupied Units	Owner Occupied Units	Renter Occupied Units
4154.02 BG 3	382	382	200	182
4155.00 BG 4	539	498	50	448
4159.00 BG 2	791	757	691	66
4160.00 BG 1	554	518	371	147
4160.00 BG 2	1,245	1225	778	447
4161.00 BG 1	1,021	947	859	88
4215.00 BG 2	820	746	355	391
4215.00 BG 3	738	644	87	557
4216.00 BG 2	853	795	152	643
4216.00 BG 3	502	408	133	275
4217.01 BG 1	924	924	405	519
4217.01 BG 2	582	582	428	154
4218.00 BG 1	757	681	282	399
4218.00 BG 2	1,278	1070	534	536
4218.00 BG 3	438	438	212	226
Study Block Groups Total	11,424	10,615	5,537	5,078
Fairfax County	409,963	392,355	265,693	126,662
Virginia	3,423,291	3,062,783	2,027,005	1,035,778

(American Community Survey, 2011-2015 5-year)

3.1.3 Environmental Consequences

The **No-Build Alternative** would not result in project-related construction or any associated property acquisitions in the Study Area. Therefore, no impacts to population or housing would result from the No-Build Alternative.

The **Build Alternative** would require additional right-of-way for construction of the proposed improvements adjacent to the existing Richmond Highway right-of-way. Seventeen housing units from six residential parcels would be displaced under the Build Alternative. This equates to less than one percent of the total housing units in the study Census block groups. Per the ACS 2011-2015 five-year data, approximately 809 housing units are unoccupied in the study Census block groups.

If appropriate housing cannot be found, VDOT can provide housing in several ways including relocation in a rehabilitated dwelling, construction of an addition to a relocation dwelling, purchase of land and construction of a new replacement dwelling, a replacement housing payment more than the price differential, or a direct loan that would enable the displaced person to construct or contract the construction of a replacement dwelling.

3.2 ENVIRONMENTAL JUSTICE

3.2.1 Methodology

Regulatory Context

Title VI of the Civil Rights Act of 1964, as amended, requires no person in the United States shall, on the ground of race, color, or national origin (including individuals with Limited English Proficiency (LEP)), be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance. Title VI bars intentional discrimination, as well as disparate impact discrimination (i.e., a neutral policy or practice that has an unequal impact on protected groups).

The FHWA Title VI Program is broader than the Title VI statute and encompasses other nondiscrimination statutes and authorities, including:

- Section 162 (a) of the *Federal-Aid Highway Act of 1973* (23 USC 324) providing protection against gender-based discrimination;
- The *Age Discrimination Act of 1975* prohibiting discrimination on the basis of age;
- Section 504 of the *Rehabilitation Act of 1973/Americans with Disabilities Act of 1990* providing disabled individuals equal opportunities to participate in and have access to federal programs, benefits and services;
- Executive Order 13166 – *Improving Access to Services for Persons with Limited English Proficiency* requiring federal agencies to identify any need for services to those with limited understanding of the English language; and
- Executive Order 12898 – *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations* (1994) to ensure federal programs do not result in disproportionately high and adverse environmental or health impacts to these populations.

Executive Order 12898 – *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations* requires all federal agencies to:

“...promote nondiscrimination in federal programs substantially affecting human health and the environment, and provide minority and low-income communities’ access to public information on, and an opportunity for public participation in, matters relating to human health or the environment.”

The EJ analysis has been prepared in accordance with the definitions, methodologies, and guidance provided in Executive Order 12898; CEQ’s *Environmental Justice Guidance Under the National Environmental Policy Act* (1997); US Department of Transportation (USDOT) Order 5610.2(a) *Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (2012 revision); FHWA EJ Order 6640.23A: *FHWA Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (2012); FHWA memorandum *Guidance on Environmental Justice and NEPA* (2011); and the FHWA *Environmental Justice Reference Guide* (2015). The strategies developed under Executive Order 12898 and the USDOT/FHWA policies on EJ take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of federal transportation projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law, while ensuring EJ communities are proactively provided meaningful opportunities for public participation in project development and decision-making.

Identification of Environmental Justice Populations

Executive Order 12898 itself does not define the terms “minority” or “low-income,” but these terms have been defined in the USDOT and FHWA EJ Orders as below, and are used in this EJ analysis:

- **Minority Individual** – The USDOT and FHWA EJ Orders define a minority individual as belonging to one of the following groups:
 - (1) **Black:** a person having origins in any of the black racial groups of Africa;
 - (2) **Hispanic or Latino:** a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race;
 - (3) **Asian American:** a person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent;
 - (4) **American Indian and Alaskan Native:** a person having origins in any of the original people of North America, South America (including Central America), and who maintains cultural identification through Tribal affiliation or community recognition; or
 - (5) **Native Hawaiian and Other Pacific Islander:** a person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.
- **Low-Income Individual** – The FHWA and USDOT EJ Orders define a “low-income” individual as a person whose median household income is at or below the Department of Health and Human Services (HHS) poverty guidelines. While more recent HHS poverty guidelines are available, the 2015 guidelines are appropriate to be used for consistent comparison to the ACS 5-year (2011-2015) *Median Household Income in the Past 12 Months (in 2015 inflation-adjusted dollars)* data available at the Census block group level used in this study. The 2015 HHS poverty guidelines for persons living in the contiguous 48 states and District of Columbia were used for this analysis and are presented in **Table 3-3**.

Table 3-3: 2015 HHS Poverty Guidelines

Persons in Family/Household	Poverty Guideline
1	\$11,770
2	\$15,930
3	\$20,090
4	\$24,250
5	\$28,410
6	\$32,570
7	\$36,730
8	\$40,890

(Health and Human Services, 2015)

Executive Order 12898 and the USDOT/FHWA EJ Orders are concerned with identifying minority and low-income *populations*. The EJ analysis is based on the following population definitions:

- **Minority Populations** – Any readily identifiable groups of minority persons who live in geographic proximity, and if circumstances warrant, geographically dispersed/transient persons (such as

migrant workers or Native Americans) who would be similarly affected by a proposed USDOT/FHWA program, policy, or activity (USDOT and FHWA EJ Orders). For the purposes of this analysis, a minority population is present when: (a) the minority population of the affected area exceeds 50 percent of total population, or (b) the minority population percentage in the affected area is “meaningfully greater” than the minority population percentage in the general population or other appropriate unit of geographical analysis (CEQ, 1997). For the purposes of this study, the minority population for a study Census block group will be found to be “meaningfully greater” than surrounding study block groups if its minority population is greater than the value of the block group with the lowest percentage of minority population within the study Census block groups, plus an additional 10 percent of that value. This methodology has been agreed upon by the Environmental Protection Agency (EPA), FHWA, and VDOT, as appropriate, for the identification of minority populations for discussion within NEPA documents.

- **Low-Income Population** – Any readily identifiable group of low-income persons who live in geographic proximity, and, if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans) who would be similarly affected by a proposed USDOT/FHWA program, policy, or activity (USDOT/FHWA EJ Orders). In the EJ analysis, low-income populations are identified where the median household income for a study Census block group is at or below the HHS poverty threshold for a family of four. On average, occupied households in the study Census block groups are inhabited by 2.8 persons. This analysis uses the HHS four-person family poverty level to conservatively identify low-income populations in the study Census block groups.

3.2.2 Existing Conditions

Minority Populations

Table 3-4 presents the race and ethnicity data of residents in the Study Area Census block groups per 2010 US Decennial Census data. The table also identifies those that meet the definition of a minority population. The “meaningfully greater” threshold for racial minority populations was set at 19.6 percent based on Census block group 4161.00 BG 1 having the lowest minority population of 17.8 percent ($17.8 \times 0.10 = 1.78 + 17.8 = 19.6$ percent). Based on this threshold, 14 of the 15 study Census block groups meet the definition of racial minority populations. The “meaningfully greater” threshold for Hispanic/Latino populations was set at 6.2 percent based on Census block group 4161.00 BG 1 having the lowest Hispanic/Latino population of 5.6 percent. Based on this threshold, 14 of the 15 Study Area

Table 3-4: Study Area Block Groups Race, Ethnicity and Minority Populations

Study Block Groups	Total Population	White (#/%)	Black or African American (#/%)	American Indian and Alaska Native (#/%)	Asian (#/%)	Native Hawaiian and Other Pacific Islander (#/%)	Some Other Race (#/%)	Two or More Races (#/%)	Hispanic or Latino (#/%)	Total Block Group Minority Population (#/%)	EJ Population
4154.02 BG 3	1,013	438/43.2	320/31.6	3/0.3	149/14.7	6/0.6	50/4.9	47/4.6	193/19.1	575/56.8	Yes
4155.00 BG 4	1,459	232/15.9	935/64.1	8/0.5	138/9.5	0/0.0	72/4.9	74/5.1	165/11.3	1,227/84.1	Yes
4159.00 BG 2	2,224	1,814/81.6	84/3.8	16/0.7	131/5.9	4/0.2	89/4.0	86/3.9	216/9.7	410/18.4	Yes
4160.00 BG 1	1,679	845/50.3	514/30.6	6/0.4	161/9.6	0/0.0	101/6.0	52/3.1	262/15.6	834/49.7	Yes
4160.00 BG 2	3,047	1,629/53.5	687/22.5	21/0.7	224/7.4	2/0.1	380/12.5	104/3.4	839/27.5	1,418/46.5	Yes
4161.00 BG 1	2,535	2,083/82.2	175/6.9	6/0.2	176/6.9	1/0.0	37/1.5	57/2.2	143/5.6	452/17.8	No
4215.00 BG 2	3,028	1227/40.5	479/15.8	23/0.8	199/6.6	0/0.0	978/32.3	122/4.0	2,024/66.8	1,801/59.5	Yes
4215.00 BG 3	1,884	362/19.2	901/47.8	11/0.6	92/4.9	0/0.0	443/23.5	75/4.0	716/38.0	1,522/80.8	Yes
4216.00 BG 2	2,026	387/19.1	980/48.4	32/1.6	154/7.6	1/0.0	309/15.3	163/8.0	665/32.8	1,639/80.9	Yes
4216.00 BG 3	1,631	370/22.7	742/45.5	16/1.0	91/5.6	0/0.0	364/22.3	48/2.9	597/36.6	1,261/77.3	Yes
4217.01 BG 1	2,966	973/32.8	915/30.8	18/0.6	189/6.4	7/0.2	673/22.7	191/6.4	1,525/51.4	1,993/67.2	Yes
4217.01 BG 2	1,580	564/35.7	544/34.4	23/1.5	109/6.9	6/0.4	231/143.6	103/6.5	545/34.5	1,016/64.3	Yes

4218.00 BG 1	1,965	742/37.8	744/37.9	4/0.2	189/9.6	0/0.0	191/9.7	95/4.8	386/19.6	1,223/62.2	Yes
4218.00 BG 2	2,608	833/31.9	895/34.3	14/0.5	212/8.1	7/0.3	498/19.1	149/5.7	1,001/38.4	1,775/68.1	Yes
4218.00 BG 3	1,289	590/45.8	346/26.8	16/1.2	153/11.9	0/0.0	109/8.5	75/5.8	251/19.5	699/54.2	Yes

(US Census Bureau, 2010)

Census block groups meet the definition of a Hispanic/Latino population (**Figure 3-2**). The only Census block group (4161.00 BG 1) that does not meet the threshold of having a minority population is in the southwestern portion of the Study Area near the Mount Vernon Country Club.

Racial minorities comprise 57.7 percent of the total study Census block groups population (**Table 3-5**) and are distributed as follows: 29.9 percent are black or African American, 0.7 percent are American Indian and Alaska Native, 7.7 percent are Asian, 0.1 percent are Native Hawaiian / Other Pacific Islander, 14.6 percent are Some Other Race, and 4.7 percent are Two or More Races. In addition, 30.8 percent of the study Census block group population is of Hispanic or Latino ethnicity. A higher proportion of racial minorities reside in the study Census block groups (57.7 percent) than in all of Fairfax County (37.3 percent) or statewide (31.4 percent). Similarly, the proportion of Hispanic/Latino residents (30.8 percent) in the study Census block groups is greater than that of Fairfax County (15.6 percent) and Virginia (7.9 percent).

Based on the findings of the EJ population diversity in the project location, a more robust outreach was used to ensure the Spanish, and Korean speaking residents and business owners were informed. The Limited English Proficiency requirement was met by providing interpreters at the four Public Information Meetings and Design Public Hearing, providing translation of all meeting materials in English, Spanish and Korean. For the Harmony Place Trailer Park a special meeting was held at Good Shephard Catholic Church, in Alexandria, Virginia on February 6, 2020. This meeting presentation was in Spanish, with three interpreters fully engaged with the residents. Over the two-hour meeting, many residents provided comments in Spanish, and were able to communicate, allowing the project team a comprehensive opportunity to hear from this community. At other meetings, the project team was fully engaged with Korean business owners who also attended many meetings. VDOT has taken every opportunity to ensure the many communities in the study area have been acknowledged, and made efforts to have interpreters at every meeting.

Low-Income Populations

Table 3-5 presents the median household income of residents in the study Census block groups and if any of these block groups meet the definition of a low-income population. Per the 2015 HHS poverty guidelines, the poverty threshold for a four-person family is \$24,250. No study Census block groups have median household incomes below this threshold, and therefore, none are considered low-income populations. However, the Spring Garden Apartments at 7995 Richmond Highway in the northern Study Area has federally assisted affordable housing and is considered a low-income population for the purposes of this study.

3.2.3 Environmental Consequences

The **No Build Alternative** would not improve Richmond Highway and therefore would not result in any associated property acquisitions or impacts to EJ populations.

Under the **Build Alternative**, 14 of the 15 study Census block groups contain minority populations meeting the established threshold for EJ populations, and none qualify as low-income populations. A low-income population is identified at the Spring Garden Apartment complex in the northern Study Area. When impacts to EJ populations were identified, the impacts experienced by the affected population were compared to those experienced by others residing in the entire Build Alternative limits of disturbance. A disproportionately high and adverse effect on minority and low-income population locations is defined by the FHWA EJ Order as an impact that:

- Would be predominately borne by a minority and/or low-income population, or
- Would be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that would be suffered by the nonminority population and/or non-low-income population.

Per the FHWA *Memorandum Guidance on Environmental Justice and NEPA* (December 16, 2011), the impacts to minority populations were compared with respect to the impacts on the overall population within the Study Area (Census Block Groups that intersect with the Build Alternative). The benefits of reduced congestion, improved mobility, and enhanced pedestrian and bicycle facilities under the Build Alternative would be borne by all who reside along the Richmond Highway corridor, including Census block groups that contain minority populations and the low-income population at the Spring Garden Apartments. All users of the Richmond Highway would also benefit.

Sixteen housing unit displacements on five residential parcels in minority population Census block groups could occur under the Build Alternative. No relocations would occur at the low-income Spring Garden Apartments population. One housing unit on one residential parcel could be displaced in Census block group 4161.00 BG 1 that does not meet the thresholds for minority or low-income populations. Although housing displacements would occur on five residential parcels in Census block groups containing minority populations, the non-minority resident population within those same block groups ranges from 15.9 to 84.1 percent. This increases the probability that not all residential displacements would be borne by minorities and the impact would not be disproportionate. Temporary easements for construction are anticipated to occur in minority and low-income populations as well as non-EJ areas along Richmond Highway in the Study Area. Further, construction easements would be short-term and would not preclude access to or impact the use of affected properties; therefore, potential temporary right-of-way impacts during construction are not considered high and adverse to minority populations within the Study Area.

The Little Hunting Creek Bridge is surrounded by Census block groups that qualify as minority populations. At Dogue Creek, the Census block group 4218.00 BG1 to the west of the bridge is a minority population, whereas Census block group 4161.00 BG1 to the east is neither a minority nor low-income population. Residents at the Harmony Place Trailer Park expressed concerns and the New Gum Springs Civic Association, representing residents living near the Little Hunting Creek Bridge, does not support providing a pedestrian underpass. The Mount Vernon Council of Citizens' Association, representing residents throughout the Study Area, also expressed concerns with the underpasses proposed at Dogue Creek and Little Hunting Creek. Concerns expressed about both underpasses include providing easier access to nearby residential areas that could increase crime, more difficulty in monitoring areas below the bridge that could decrease safety, increased litter, vandalism, maintenance issues, enabling camping, unsanitary conditions, and flooding. Measures to provide 24-hour security such as cameras were requested. Fairfax County has committed to 24-hour security, lighting, and increased police patrols, along with ongoing maintenance of the underpasses.

Providing pedestrian underpasses as proposed by the Build Alternative would not result in any residential or other relocations, thereby minimizing impacts to minority populations. The proposed underpasses would provide alternative below grade access for those residential communities, so pedestrians could cross under the roadway, rather than having to stop at the at grade signalized intersection. Measures included in the Build Alternative to address concerns and mitigate potential safety effects include providing lighting, a call box, and trash receptacles at each underpass.

Coordination with concerned organizations and county officials is ongoing and additional design changes to the proposed pedestrian underpasses may occur during advanced design. VDOT and Fairfax County Department of Transportation will ensure the community is heard, continuing ongoing outreach and providing additional meeting opportunities to discuss the potential underpasses with local residents. VDOT and Fairfax County will work with the communities to determine the timing of additional meetings, and create a joint information sharing opportunity. Any associated changes in effects to Environmental Justice populations would be assessed in a NEPA Reevaluation. The safety measures implemented by Fairfax County Department of Transportation such as 24-hour security, lighting, a call box, trash receptacles, and increased police patrols, along with ongoing maintenance, address the community concerns and mitigate the potential safety effects of the underpasses. The underpasses are not anticipated to have a disproportionate high and adverse effect on minority or low income populations.

As part of the Build Alternative at-grade crossings for pedestrians opting not to use the proposed underpass at Dogue Creek, the nearest signalized crosswalk on the south side of the Dogue Creek Crossing would be approximately 800 feet away at the Mount Vernon Memorial Highway (VA 235) / Jeff Todd Way intersection, or 1,500 feet north of the bridge at the realigned Sacramento Drive intersection. Similarly, the nearest pedestrian signalized crosswalks to the Little Hunting Creek bridge would be approximately 150 feet away to the Mount Vernon Highway (VA 235) / Buckman Road intersection to the south, or 330 feet north to Ladson Lane.

Under the Build Alternative, access to some parcels in minority population areas could change; however, access to parcels in non-EJ areas could also change. As described above, the non-minority resident population within the minority population block groups along Richmond Highway in the Study Area varies, increasing the probability that not all access changes would be predominately borne by minority populations. Moreover, all parcels would retain at least one access without impacting use of the parcel; thus, access changes are not anticipated to have disproportionately high and adverse effects on minority populations.

The Build Alternative would cause noise impacts to both environmental justice populations and other residents. In accordance with FHWA Order 6640.23, consideration of mitigation for noise impacts (e.g., noise barriers) would occur for all impacted residential receptors and noise barriers would be constructed if they are reasonable and feasible.

Other construction effects such as dust and visual disturbance may occur and, would impact both minority, low-income and non-EJ population areas along Richmond Highway in the Study Area. The effects would be temporary; no disproportionately high and adverse effects on minority or low-income populations are anticipated.

Figure 3-2: Study Census Block Group Minority and Low-Income Populations

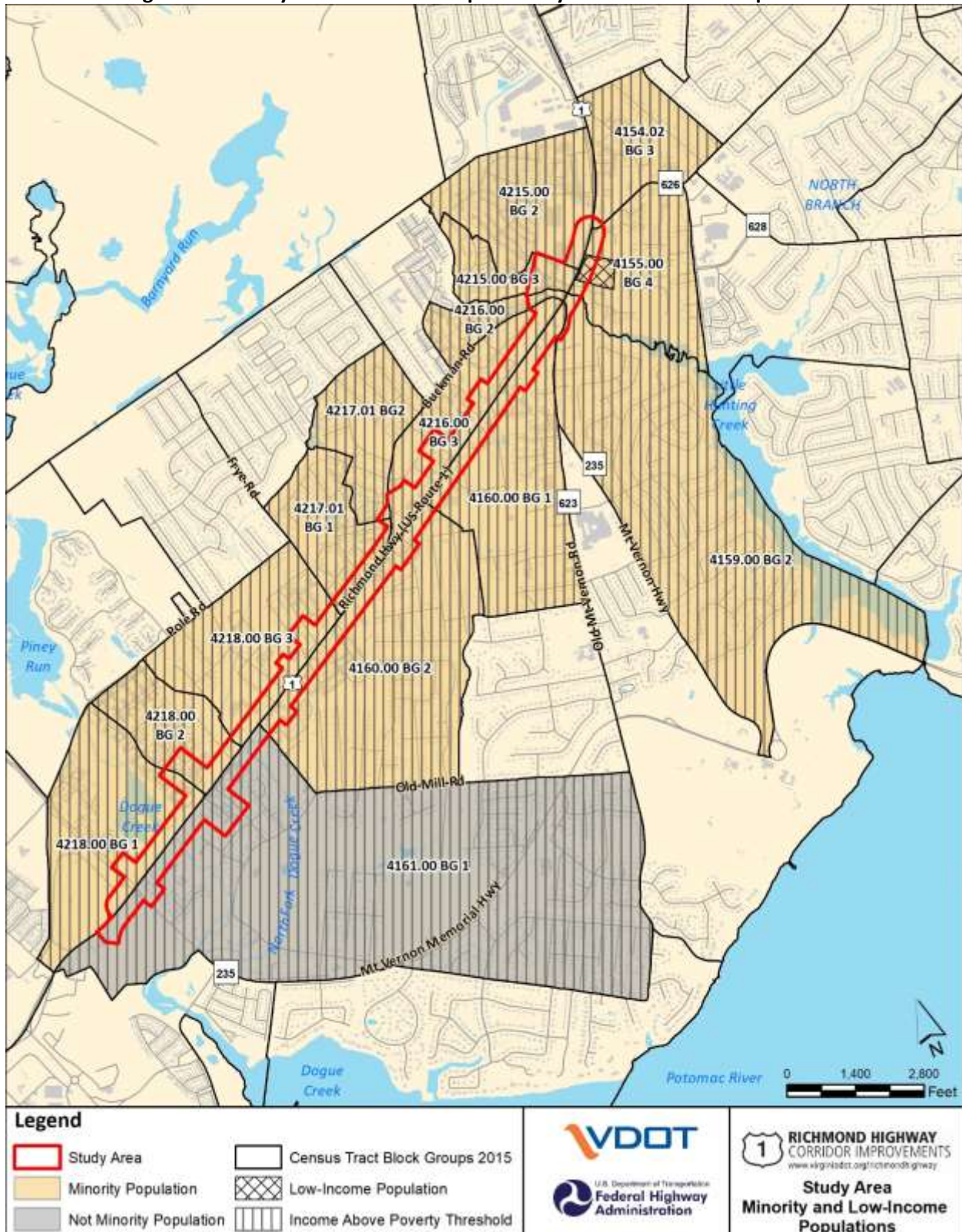


Table 3-5: Study Census Block Group, Fairfax County, and Virginia Minority or Low-Income Populations

Geographic Areas / Block Groups	Total Population	Minority Population	EJ Threshold	Hispanic Population	EJ Threshold	Median Household Income	Poverty Threshold (4 Persons/Household)	EJ Population
4154.02 BG 3	1,013	56.8%	19.6%	19.1%	6.2%	\$75,192	\$24,250	Yes
4155.00 BG 4	1,459	84.1%	19.6%	11.3%	6.2%	\$26,739	\$24,250	Yes
4159.00 BG 2	2,224	18.4%	19.6%	9.7%	6.2%	\$154,408	\$24,250	Yes
4160.00 BG 1	1,679	49.7%	19.6%	15.6%	6.2%	\$121,100	\$24,250	Yes
4160.00 BG 2	3,047	46.5%	19.6%	27.5%	6.2%	\$61,250	\$24,250	Yes
4161.00 BG 1	2,535	17.8%	19.6%	5.6%	6.2%	\$146,719	\$24,250	No
4215.00 BG 2	3,028	59.5%	19.6%	66.8%	6.2%	\$41,855	\$24,250	Yes
4215.00 BG 3	1,884	80.8%	19.6%	38.0%	6.2%	\$25,957	\$24,250	Yes
4216.00 BG 2	2,026	80.9%	19.6%	32.8%	6.2%	\$49,668	\$24,250	Yes
4216.00 BG 3	1,631	77.3%	19.6%	36.6%	6.2%	\$49,688	\$24,250	Yes
4217.01 BG 1	2,966	67.2%	19.6%	51.4%	6.2%	\$51,406	\$24,250	Yes
4217.01 BG 2	1,580	64.3%	19.6%	34.5%	6.2%	\$74,667	\$24,250	Yes
4218.00 BG 1	1,965	62.2%	19.6%	19.6%	6.2%	\$73,074	\$24,250	Yes
4218.00 BG 2	2,608	68.1%	19.6%	38.4%	6.2%	\$67,163	\$24,250	Yes
4218.00 BG 3	1,289	54.2%	19.6%	19.5%	6.2%	\$73,538	\$24,250	Yes
Study Block Groups Total	30,934	57.7%	N/A	30.8%	N/A	\$67,163	N/A	
Fairfax County	1,081,726	37.3%		15.6%		\$112,552		
Virginia	8,001,024	31.4%		7.9%		\$65,015		

(US Census Bureau, 2010 and American Community Survey 5-year (2011-2015) data)

4. ECONOMICS

4.1 METHODOLOGY

This economic analysis focuses on income, employment, and business in the Study Area. Specifically, 2015 Census data was collected for the following geographic areas within the Study Area: income and employment data (ACS 5-year 2011-2015) by Census block group; industry employment data by Census tract (ACS 5-year 2011-2015), and 2014 business patterns by zip code (County Business Patterns 2015). The business patterns data was available for 2014 only.

4.2 EXISTING CONDITIONS

4.2.1 Income

Table 3-5 summarizes the ACS 5-year 2011-2015 median household income data of persons residing in the study Census block groups. Census block group 4215.00 BG 3 located in Hybla Valley had the lowest median household income (\$25,957) and block group 4159.00 BG 2 located in Mount Vernon had the highest median household income (\$154,408). The median household income of all the study Census block groups is \$67,163, which is less than that of Fairfax County (\$112,552), but greater than that of Virginia (\$65,015).

4.2.2 Employment

The study Census block groups labor force and employment data (ACS 5-year 2011-2015) are summarized and compared to Fairfax County and Virginia data in **Table 4-1**. As defined by the ACS, the labor force includes the civilian and US Armed Forces population over 16 years of age working as paid employees, the self-employed (including farmers), or those who worked 15 hours or more as unpaid workers for a family farm/business. Excluded from the labor force are those over 16 years of age who are students, homemakers, and unpaid volunteers; retirees; those institutionalized; or those who worked less than 15 hours a week as unpaid workers for a family farm/business. The unemployed are over 16 years of age and not currently working but actively looking for work, and generally available to work. Per the ACS data, approximately 93.1 percent of the work force in the study Census block groups is employed. This is less than the Fairfax County (95.2 percent) employment rate and similar to the statewide rate (93.7 percent).

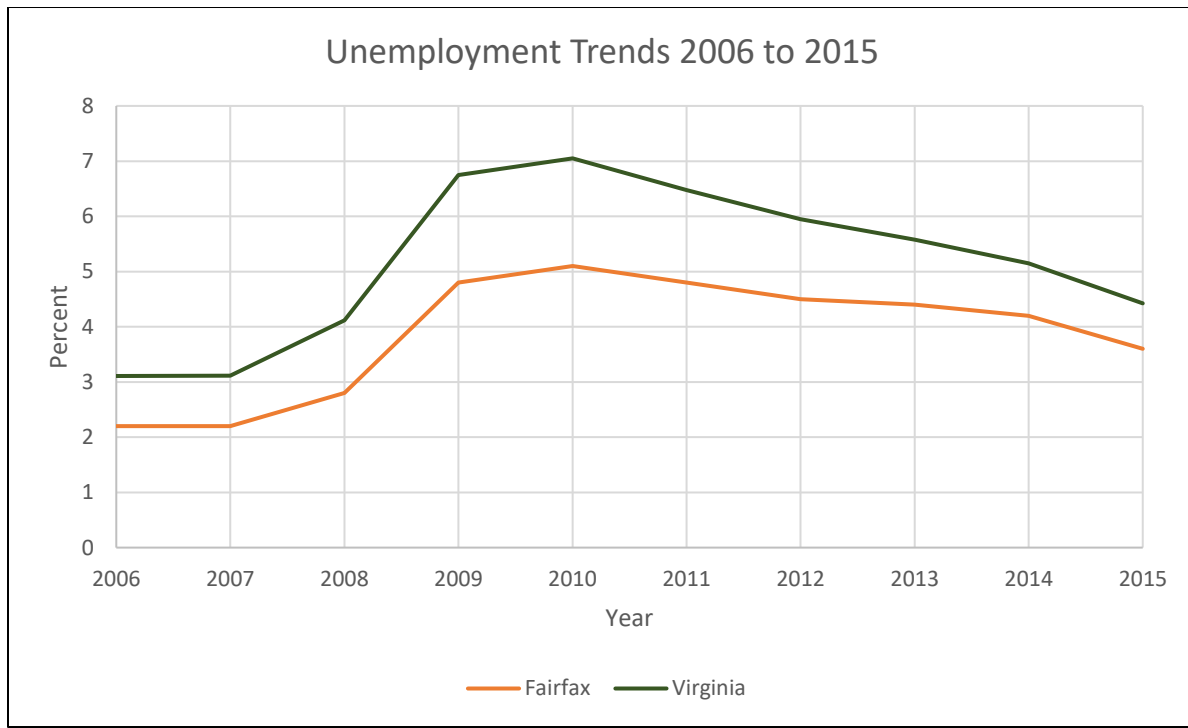
Table 4-1: Study Census Block Group Employment Characteristics

Geographic Areas / Block Groups	Total Population	Total Population in Labor Force	Total Employed (Civilian and Military)	Total Employed Percent
4154.02 BG 3	728	450	439	97.6%
4155.00 BG 4	812	564	547	97.0%
4159.00 BG 2	1,719	1,142	1,099	96.2%
4160.00 BG 1	1,207	949	900	94.8%
4160.00 BG 2	2,523	1,756	1,718	97.8%
4161.00 BG 1	2,197	1,310	1,274	97.3%
4215.00 BG 2	1,836	1,199	1,046	87.2%
4215.00 BG 3	1,072	820	805	98.2%
4216.00 BG 2	1,637	1,211	1,078	89.0%
4216.00 BG 3	929	763	745	97.6%
4217.01 BG 1	2,671	2,213	2,017	91.1%
4217.01 BG 2	1,143	795	724	91.1%
4218.00 BG 1	1,321	1,015	934	92.0%
4218.00 BG 2	2,928	2,389	2,197	92.0%
4218.00 BG 3	887	676	543	80.3%
Study Block Groups Total	23,610	17,252	16,066	93.1%
Fairfax County	886,641	645,715	614,777	95.2%
Virginia	6,598,956	4,376,786	4,100,756	93.7%

American Community Survey 5-year (2011-2015) data

Between 2006 and 2015, unemployment in Fairfax County and Virginia was approximately 3.0 percent or less (Bureau of Labor Statistics, 2016). At the height of the recession in 2010, Fairfax County had an unemployment rate of approximately 5.0 percent while statewide unemployment peaked at 7.0 percent. The unemployment rate has been decreasing since 2010. In 2015, unemployment in Fairfax County was approximately 3.5 percent while Virginia was 4.5 percent (**Figure 4-1**).

Figure 4-1: County and State 10-year Unemployment Trends



(Bureau of Labor Statistics, 2016)

The ACS presents the number of resident employees per North American Industry Classification System (NAICS) category by Census tract. The Census tracts within the Study Area are shown in **Figure 4-2** and **Table 4-2** presents the industry employment data for study Census tracts, Fairfax County, and Virginia (ACS 5-year 2011-2015). Detailed industry employment data is not available at the Census block group level. Of the industry categories, most civilian workers residing in the study Census tracts are engaged in professional, scientific, management, administrative, and waste management (17.7 percent); and educational services, health care, and social assistance (16.6 percent) industry sectors. In comparison, the same categories account for 24.8 percent and 17.7 percent of respective employed residents in Fairfax County, and 14.7 percent and 21.8 percent in Virginia.

Figure 4-2: Study Area Census Tracts

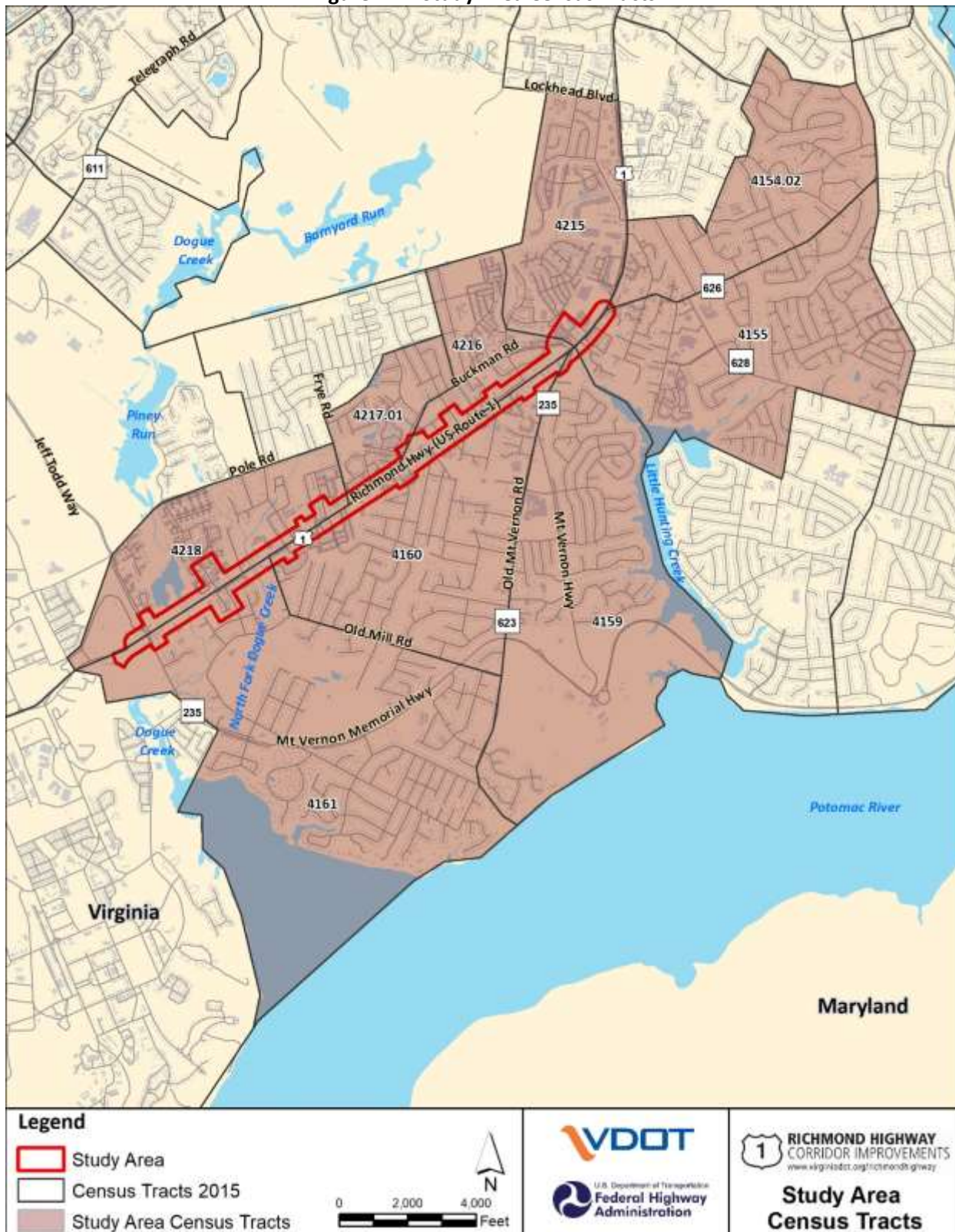


Table 4-2: Resident Employees in Study Census Tracts and Localities by Industry (2015)

NAICS* Industry Sector	Census Tract 4154.02	Census Tract 4155.00	Census Tract 4159.00	Census Tract 4160.00	Census Tract 4161.00	Census Tract 4215.00	Census Tract 4216.00	Census Tract 4217.01	Census Tract 4218.00	Study Census Tracts Total	Fairfax County	Virginia
Agriculture, Forestry, Fishing, Hunting, and Mining	12	0	0	14	0	0	21	0	24	71	1,263	40,547
Construction	34	59	100	336	99	789	572	318	462	2,769	32,491	254,569
Manufacturing	40	40	52	15	13	133	40	142	89	564	16,616	289,554
Wholesale Trade	11	92	6	54	63	0	82	37	138	483	7,684	76,555
Retail Trade	87	246	141	236	142	496	622	218	308	2,496	48,645	431,999
Transportation, Warehousing, and Utilities	60	35	49	94	14	137	161	128	218	896	17,285	167,393
Information	0	101	6	25	31	5	70	0	73	311	18,099	83,818
Finance, Insurance, Real Estate, Rental and Leasing	18	150	111	171	82	145	67	54	120	918	40,656	252,597
Professional, Scientific, Management, Administrative and Waste Management Services	308	391	428	308	477	676	503	413	605	4,109	149,825	588,520
Educational Services, Health Care and Social Assistance	293	734	276	473	270	422	326	470	608	3,872	107,189	871,802
Arts, Entertainment, Recreation, Accommodation and Food Services	75	290	119	398	74	352	355	538	473	2,674	51,609	355,541

NAICS* Industry Sector	Census Tract 4154.02	Census Tract 4155.00	Census Tract 4159.00	Census Tract 4160.00	Census Tract 4161.00	Census Tract 4215.00	Census Tract 4216.00	Census Tract 4217.01	Census Tract 4218.00	Study Census Tracts Total	Fairfax County	Virginia
Other Services, except Public Administration	100	179	99	134	136	167	347	216	166	1,544	38,418	212,220
Public Administration	196	271	251	535	288	221	312	199	286	2,559	74,186	365,655
Civilian Employed Population 16 Years and Older	1,234	2,588	1,638	2,793	1,689	3,543	3,478	2,733	3,570	23,266	603,966	3,990,770

American Community Survey 5-year (2011-2015) data

*North American Industry Classification System

4.2.3 Business

The US Census Bureau's Business Patterns 2014 data provides certain business characteristics by NAICS code and zip code. **Figure 4-3** displays the boundaries for zip codes 22306 and 22309 that encompass the Study Area. As shown in **Table 4-3**, 519 business establishments are in zip code 22306 and 390 in zip code 22309. The top five establishment sectors in the Study Area zip codes are: retail trade (15.7 percent); health care and social assistance (14.0 percent); other services (13.4 percent); professional, scientific, and technical services (11.2 percent); and accommodation and food services (11.0 percent). The most establishments in Fairfax County and statewide are in the professional, scientific, and technical services sector, with 8,587 establishments (28.5 percent) in the county and 30,473 (15.6 percent) in Virginia.

Figure 4-3: Study Area Zip Code Boundaries



Table 4-3: Number of Establishments by NAICS Code for Study Zip Codes and Localities

*NAICS Business Sector	Zip Code 22309		Zip Code 22306		Study Zip Codes Total		Fairfax County		Virginia	
	Number	Percent of Total	Number	Percent of Total	Number	Percent of Total	Number	Percent of Total	Number	Percent of Total
Accommodation and Food Services	36	9.2%	64	12.3%	100	11.0%	2,235	7.4%	17,344	8.9%
Administrative, Support, Waste Management and Remediation Services	33	8.5%	41	7.9%	74	8.1%	1,777	5.9%	10,630	5.4%
Agriculture, Forestry, Fishing, and Hunting	1	0.3%	0	0.0%	1	0.1%	6	0.0%	655	0.3%
Arts, Entertainment, and Recreation	6	1.5%	3	0.6%	9	1.0%	376	1.2%	2,898	1.5%
Construction	46	11.8%	45	8.7%	91	10.0%	2,300	7.6%	19,137	9.8%
Educational Services	8	2.1%	5	1.0%	13	1.4%	623	2.1%	2,988	1.5%
Finance Insurance	11	2.8%	30	5.8%	41	4.5%	1,667	5.5%	11,214	5.7%
Health Care, Social Assistance	39	10.0%	88	17.0%	127	14.0%	2,976	9.9%	19,205	9.8%
Industries Not Classified	0	0.0%	1	0.2%	1	0.1%	81	0.3%	456	0.2%
Information	7	1.8%	14	2.7%	21	2.3%	832	2.8%	3,911	2.0%
Management of Companies and Enterprises	1	0.3%	0	0.0%	1	0.1%	316	1.0%	1,360	0.7%
Manufacturing	3	0.8%	3	0.6%	6	0.7%	360	1.2%	4,986	2.5%
Mining, Quarrying, and Oil and Gas Extraction	0	0.0%	0	0.0%	0	0.0%	6	0.0%	287	0.1%
Other Services (Except Public Administration)	71	18.2%	51	9.8%	122	13.4%	2,489	8.3%	21,432	11.0%
Professional, Scientific, and Technical Services	50	12.8%	52	10.0%	102	11.2%	8,587	28.5%	30,473	15.6%

*NAICS Business Sector	Zip Code 22309		Zip Code 22306		Study Zip Codes Total		Fairfax County		Virginia	
	Number	Percent of Total	Number	Percent of Total	Number	Percent of Total	Number	Percent of Total	Number	Percent of Total
Real Estate, Rental and Leasing	19	4.9%	20	3.9%	39	4.3%	1,498	5.0%	9,211	4.7%
Retail Trade	47	12.1%	96	18.5%	143	15.7%	2,703	9.0%	27,059	13.8%
Transportation and Warehousing	8	2.1%	3	0.6%	11	1.2%	410	1.4%	4,858	2.5%
Utilities	0	0.0%	0	0.0%	0	0.0%	16	0.1%	331	0.2%
Wholesale Trade	4	1.0%	3	0.6%	7	0.8%	881	2.9%	7,204	3.7%
Total	390	N/A	519	N/A	909	N/A	30,139	N/A	195,639	N/A

US Census Bureau (2016b) Zip Code Business Statistics

**North American Industry Classification System*

A total of 909 establishments are within the study zip codes. Most establishments in zip code 22306 have one to four employees (48.7 percent) with the largest establishment having 1,000 employees or more. Within zip code 22309, most establishments also have one to four employees (63.6 percent) and the largest establishment has 100 to 249 employees (**Table 4-4**). Up to 55.1 percent of Study Area zip code establishments have one to four employees. Most Fairfax County establishments have one to four employees as well (55.5 percent). In addition, 49 establishments (0.2 percent) in the county have more than 1,000 employees. Statewide, over half (52.7 percent) of establishments have one to four employees and 182 establishments (0.1 percent) have more than 1,000 employees.

According to the US Census Bureau 2014 Business Patterns data, business establishments in zip code 22306 have a total annual payroll of \$315.8 million and those in zip code 22309 have a total annual payroll of \$87.9 million. Combined, businesses in the Study Area zip codes have a total annual payroll of \$403.7 million

Table 4-4: Establishment Size Ranges in Study Zip Codes

Establishment Size	Zip Code 22306	Zip Code 22309	Study Zip Code Total	
Establishments with 1 to 4 employees	253	248	501	55.1%
Establishments with 5 to 9 employees	91	61	152	16.7%
Establishments with 10 to 19 employees	94	52	146	16.1%
Establishments with 20 to 49 employees	47	24	71	7.8%
Establishments with 50 to 99 employees	22	4	26	2.9%
Establishments with 100 to 249 employees	7	1	8	0.9%
Establishments with 250 to 499 employees	4	0	4	0.4%
Establishments with 500 to 999 employees	0	0	0	0.0%
Establishments with 1,000 employees or more	1	0	1	0.1%
Total Establishments	519	390	909	100.0%
Annual Payroll (\$million)	\$315.8	\$87.9	\$403.7	

US Census Bureau (2016b) Zip Code Business Statistics

4.3 ENVIRONMENTAL CONSEQUENCES

The **No Build Alternative** would not make any improvements to Richmond Highway in the Study Area, and thus no direct impact to income, employment, or economics would occur.

The **Build Alternative** would require displacing 46 commercial buildings on 32 parcels that comprise approximately five percent of establishments within the zip codes encompassing the Study Area. One undeveloped commercial parcel would be acquired. The number of commercial displacements may possibly be reduced in the design process. Displaced businesses would be compensated under the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 and would be eligible for relocation assistance. Commercial displacements under the Build Alternative would not substantially impact median household income or resident employment in the study Census block groups, even assuming all displaced businesses relocated out of the Study Area. This is because the total number of displaced businesses would be a small proportion (approximately five percent) of the total number of establishments in the study zip codes. Also, given that most businesses in study zip codes have less than four employees, it is likely most of the displaced businesses would be relatively small. Temporary job

increases associated with construction of the Build Alternative may occur in the Study Area. The extent and duration of such temporary job increases would be proportional to the construction cost of the Build Alternative.

5. LAND USE AND LOCALITY PLANS

5.1 METHODOLOGY

Land use GIS data compiled by Fairfax County is used in this analysis to compute the existing land use acreage within the county and Study Area. The latest available Fairfax County general land use GIS data dates to 2016. Information on land use was also gathered from local comprehensive and land use plans, aerial photos, input from local and regional planning officials, and field reconnaissance. The following land use classifications are used in this analysis:

- Agricultural
- Commercial
- Residential
- Industrial
- Institutional, Government, Utilities
- Recreation and Open Space

Agricultural lands, as defined by Fairfax County Department of Planning and Zoning, are areas not less than 5 acres used as a business in producing crops, nursery stock or plant growth of any kind and/or the raising of livestock, aquatic life or other animals to produce food, fiber or wholesale sale of plant and animal products. Commercial use is defined as office, retail, and other commercial uses. Recreation use includes public parks, golf courses, swim clubs, tennis clubs, and country clubs. Open space is defined as undeveloped land and not otherwise planned for parks or recreation. Governmental and institutional use includes libraries, police stations, fire stations, government centers, senior centers, community centers, schools, colleges, utilities, etc. No transportation or roadway categories of land use are designated by Fairfax County.

5.2 EXISTING CONDITIONS

The Study Area is primarily comprised of the well-established communities of Woodlawn and Mount Vernon, and to a lesser extent, Hybla Valley, Fort Hunt, and Groveton. These communities are defined by their extensive residential land use with commercial land use focused around the Richmond Highway corridor. **Table 5-1** presents the existing (2016) Fairfax County land use by land use category.

Table 5-1: Fairfax County Land Use (2016)

Land Use	Acres	Percent of Fairfax County Land Use
Agricultural	59.3	< 0.1%
Commercial	9,241.9	4.1%
Residential	114,649.0	50.5%
Industrial	4,078.4	1.8%
Institutional, Government, Utilities	30,146.8	13.3%
Recreation and Open Space	68,910.8	30.4%
Total	227,086.2	100.0%

(Fairfax County, 2016a)

As shown in **Table 5-1**, current land use in Fairfax County is primarily residential followed by recreation and open space; institutional, government, and utilities; commercial; industrial; and agricultural.

Figure 5-1 shows existing land use in the Study Area. The Study Area is primarily commercial followed by residential; recreation and open space; institutional, government, and utilities; and industrial as shown in **Table 5-2**. No agricultural or industrial land use is within the Study Area.

Table 5-2: Study Area Existing Land Use (2016)

Land Use	Acres	Percent of Study Area Land Use
Agricultural	0.0	0.0%
Commercial	183.0	47.0%
Residential	102.0	26.2%
Industrial	0.0	0.0%
Institutional, Government, Utilities	41.5	10.7%
Recreation and Open Space	62.7	16.1%
Total	389.2	100.0%

(Fairfax County, 2016a)

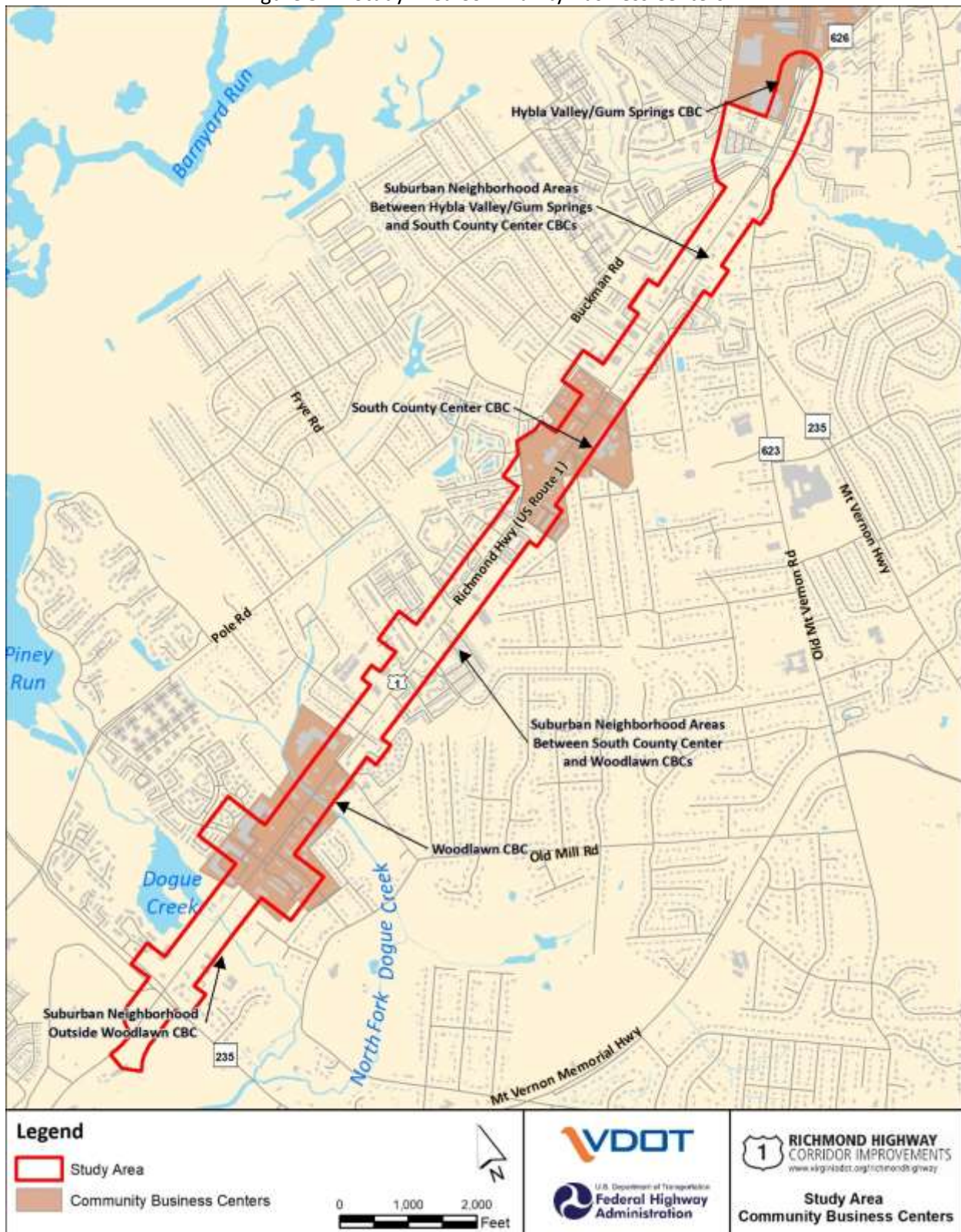
The primary land uses for the county and Study Area differ greatly. The largest differences are 47.0 percent of the land use in the Study Area is commercial while only 4.1 percent is commercial in Fairfax County. Further, the Study Area does not encompass any agricultural or industrial land uses. Land use in the Study Area is likely more commercial due to such developments locating near key transportation access nodes and the ease of access to customers. Commercial land use in the Study Area is consistent with Fairfax County land use plans. Fairfax County's primary land use is residential (50.5 percent) while the Study Area is only composed of 26.2 percent residential land use. Within Fairfax County, recreation and open space land use accounts for nearly one-third of the area in comparison to 16.1 percent for the Study Area.

The Study Area is within the Mount Vernon Planning District. Overarching planning goals for the Mount Vernon Planning District are discussed in **Section 2.2.2**. As stated in the Plan, transportation objectives in the Richmond Highway Corridor include providing improved traffic circulation and traffic safety during both peak and non-peak hours, while minimizing right-of-way impacts to adjacent residential communities. The *Fairfax County Comprehensive Plan (2013)* also makes land use recommendations based on six Community Business Centers (CBC) within the Mount Vernon Planning District. Three of these CBCs are within the Study Area: Hybla Valley/Gum Springs, South County Center, and Woodlawn (**Figure 5-2**). The areas between these CBCs are classified as Suburban Neighborhoods Areas. Development recommendations for the CBCs and Suburban Neighborhoods are intended to foster revitalization, redevelopment, and creation of distinctive urban environments (Fairfax County, 2013a). A

Figure 5-1: Study Area Existing (2016) Land Use



Figure 5-2: Study Area Community Business Centers



brief overview of Richmond Highway Corridor land use planning is provided below. Further detail can be found in the *Fairfax County Comprehensive Plan – Mount Vernon District*².

The **Hybla Valley / Gum Springs CBC** will use the Mount Vernon Plaza and South Valley Shopping Center as the focal point, per the *Comprehensive Plan*. The Plan also recommends the CBC becomes a well-designed, local activity center by combining housing, shopping, entertainment, dining, and employment opportunities in addition to aesthetic improvements. The general land use recommendations for the CBC include: office, retail, and some residential areas. Screening and buffering are planned along the roads in the CBC to provide a transition into the communities. Additional improvements proposed by the Plan include pedestrian access, internal circulation, and landscaping.

- useable open space;
- buildings to provide an attractive appearance on all sides;
- publicly accessible urban parks;
- continuous sidewalks and trails;
- buffering between existing residences and planned units; and
- land use design techniques to minimized impact on residential neighborhoods from building heights, noise, light, etc.

The **South County Center CBC** will use the South County Government Center as the focal point. Land use recommendations for the CBC, per the *Comprehensive Plan*, include office, retail, mixed-use, institutional, and residential uses. Building heights, in accordance with the *Comprehensive Plan*, should be tapered down to provide a transition to neighboring residential communities. In addition, streetscaping, public art, and pedestrian plazas are recommended that will denote this area as a focal point. The Old Mount Vernon High School is planned for public-facilities use and any future development around it, as stated in the *Comprehensive Plan*, should be compatible with its historic nature. In addition, design techniques should be used to minimize impacts to residential neighborhoods caused by building heights, noise, light, etc.

The **Suburban Neighborhood Areas between South County Center and Woodlawn CBCs** are generally planned as retail, office, residential, and mixed-use areas. Any development and/or redevelopment should be designed to provide a transition to the nearby single-family residential neighborhoods, per the *Comprehensive Plan*. Other conditions for development include the creation of a cohesive walkable environment; sufficient open space; vegetative buffering and screening to transition to residential areas; design to reduce light and sound impacts to residential areas; and recreation-focused urban parks with pedestrian connectivity.

The **Woodlawn CBC** focuses on the Woodlawn Shopping Center, Engleside Plaza, and Sacramento Center, per the *Comprehensive Plan*. The Plan calls for retail, mixed-use, office, hotel, and residential uses. Woodlawn Plantation, Mount Vernon, and Washington's Grist Mill are nearby; therefore, the Plan states redevelopment should complement the nearby tourist-oriented attractions. Similarly, the Plan indicates Fort Belvoir creates a market for this CBC, which redevelopment should relate to. The *Comprehensive Plan* provides conditions for development of the CBC. Building heights should be tapered down to provide a transition to the existing residential communities. The Plan recommends using streetscaping, public art, and pedestrian plazas to create a focal point in the CBC. Pedestrian and bicycle traffic would be encouraged through a circulation system. Per the Plan, the area surrounding Dogue Creek would be

² <http://www.fairfaxcounty.gov/dpz/comprehensiveplan/area4/mtvernon.pdf>

preserved as open space. Screening and buffering are recommended by the Plan along the roads in the CBC to provide a transition into the surrounding communities.

The **Suburban Neighborhoods outside Woodlawn CBC** are generally planned as open space as well as tourist-oriented shopping areas. The Plan states development should be consistent with that of the Woodlawn Historic Overlay District. A hotel conference center is planned for this CBC. The *Comprehensive Plan* stipulates development in this CBC be conditioned upon the following elements:

- pedestrian, bicycle, and vehicular circulation should be well-designed and promote bicycle/pedestrian usage and
- design elements such as public art, pedestrian plazas, streetscaping, and landmarks will function as a “gateway” to northern Richmond Highway.

Fairfax County is currently considering changes to the *Comprehensive Plan* that would foster transit-oriented development near anticipated future stations along Richmond Highway, including in the Study Area (Fairfax County, 2016b). The county is evaluating Plan changes that would specify new planned land use density and the mix of land uses, as well as street grids conducive to transit-oriented development, among other things.

5.3 ENVIRONMENTAL CONSEQUENCES

The **No-Build Alternative** would not require right-of-way acquisitions; therefore, no associated direct impact on land use in the Study Area would occur.

The **Build Alternative** would potentially require approximately 22 acres of permanent right-of-way to construct the proposed improvements. **Table 5-3** shows the approximate acres of land use per land use class proposed to be permanently converted to transportation use. Only permanent right-of-way acquisition is considered a conversion from its present land use to transportation use. The estimated land use conversion under the Build Alternative is relatively low when compared to the existing total acreage per land use class in the Study Area and/or Fairfax County (**Tables 5-1** and **5-2**). The Build Alternative meets the *Fairfax County Comprehensive Plan* transportation objectives and would not be inconsistent with local planning for land use in the CBCs, and suburban areas between the CBCs, along Richmond Highway in the Study Area. This is because the Build Alternative would meet County transportation goals while widening on existing alignment, minimizing impacts to adjacent commercial and residential areas.

Temporary right-of-way required for construction would be short-term and returned to the previous land use upon completion of the project.

Table 5-3: Build Alternative Land Use Conversions to Transportation

Land Use Category	Converted Acres
Commercial	11.1
Residential	3.7
Industrial	0.0
Institutional, Government, Utilities	2.2
Recreation and Open Space	5.0
Total	22.0

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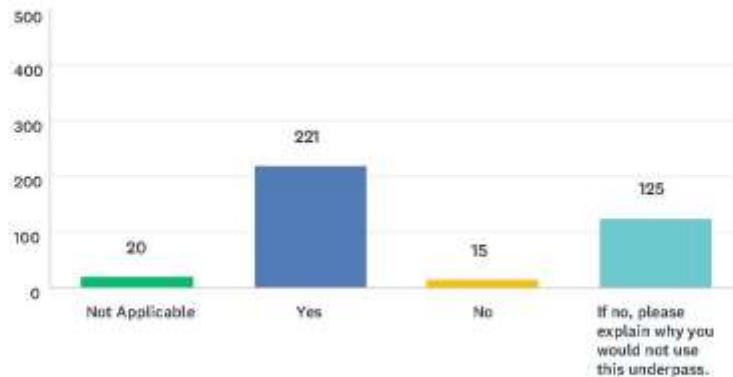
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APPENDIX A: PEDESTRIAN UNDERPASS SURVEY

Richmond Highway

Q1 Little Hunting Creek (under Richmond Highway between Buckman Road and Napper Road)

Answered: 381 Skipped: 1



ANSWER CHOICES	RESPONSES
Not Applicable	5.25% 20
Yes	58.01% 221
No	3.94% 15
If no, please explain why you would not use this underpass.	32.81% 125
TOTAL	381

#	IF NO, PLEASE EXPLAIN WHY YOU WOULD NOT USE THIS UNDERPASS.	DATE
1	Rather cross at a signal	4/26/2019 4:03 PM
2	Not saying I wouldn't, but it would need to feel safe from a personal safety perspective and easy to access-- the tight turnaround to access the tunnel feels difficult to maneuver on a bike and potentially tough to get away from someone, should the need arrive.	4/26/2019 10:53 AM
3	Dangerous at night. Would rather build over pass in the future	4/26/2019 10:35 AM
4	Strong concerns about safety in this "out of public view" areas under the road	4/26/2019 10:00 AM
5	High crime area and an underpass would create concealment for criminal activity (i.e. robbery, sexual assault, etc)	4/26/2019 12:33 AM
6	I'm concerned about my safety. Going below the highway and not being visible to others puts me at a much greater risk for becoming a crime victim.	4/25/2019 11:47 PM
7	Will attract undesirable/dangerous activity, will add significant construction expense, and concern about future maintenance issues (lighting, trash collection, crime).	4/25/2019 10:59 AM
8	Dangerous as a woman.	4/25/2019 6:50 AM
9	I don't live in the area	4/25/2019 2:19 AM
10	Personal safety	4/24/2019 8:02 PM
11	Not safe for pedestrians.	4/24/2019 7:54 PM
12	Dangerous for potential crime - overpass better	4/24/2019 10:49 AM
13	I'd rather risk getting hit by a car than being assaulted in a hidden underpass.	4/24/2019 7:23 AM

Richmond Highway

14	Safety concerns especially at night.	4/23/2019 7:35 PM
15	Would not feel safe	4/23/2019 3:43 PM
16	It is potentially dangerous, and there is already enough construction on Richmond Hwy.	4/23/2019 12:37 PM
17	I'd be afraid of what was hiding in the underpass. A overpass would be much preferred.	4/23/2019 12:15 PM
18	Doesn't sound safe if no one is around and not in public view	4/23/2019 11:41 AM
19	As designed, the underpass is much longer than a straight crossing. It also leaves me feeling vulnerable to harassment and attack that can't be seen by passers-by. It's also not at the intersection and that makes it even more out of the way for users.	4/23/2019 9:32 AM
20	Safety	4/23/2019 9:01 AM
21	As a female I don't feel safe going under a road. over I'd do. I'm a runner and an frequently in roads so safety is a concern.	4/23/2019 6:11 AM
22	The current design looks unsustantable from a safety and cleanliness perspective.	4/23/2019 4:45 AM
23	Underpasses are dangerous for pedestrians because they can't be seen. I can see rapes, murders, assaults, robbery, kidnapping and the like occurring. Overpasses are the way to go.	4/23/2019 4:01 AM
24	Don't want any opportunities for crime, drugs or homeless camp outs.	4/22/2019 9:49 PM
25	I don't think I would feel safe there especially with a young daughter	4/22/2019 9:33 PM
26	It will be dangerous.	4/22/2019 9:21 PM
27	Safety. Can't be seen by anyone above.	4/22/2019 3:40 PM
28	Don't find myself walking across or bicycling there.	4/22/2019 12:08 PM
29	too much criminal activity in the area	4/22/2019 9:33 AM
30	Homeless and criminal element likely present there.	4/22/2019 8:03 AM
31	Unsafe for women/ how about a bridge above ground!	4/22/2019 7:21 AM
32	Safety concern and homeless taking up residence. pedestrian overpass should be considered.	4/21/2019 8:04 AM
33	don't consider crossing in tunnel safe. doesn't make sense	4/20/2019 11:29 AM
34	I don't walk along Richmond Highway	4/19/2019 7:25 PM
35	I would not feel safe	4/19/2019 3:06 PM
36	I find underpasses to be unsafe and dirty, especially as a woman. It would have to be lit up as bright as daylight at all times in order for me to consider using it.	4/19/2019 2:26 PM
37	Safety concerns	4/19/2019 1:13 PM
38	Do not live near them to use. I have car	4/19/2019 10:32 AM
39	I would use the underpass only if well lit & safe	4/19/2019 9:52 AM
40	Safety; who is going to clean? flooding	4/19/2019 8:36 AM
41	That section of creek is already troubled. It would only get worse and be a safety issue if a pedestrian underpass were there.	4/19/2019 2:01 AM
42	the majority of people who cross Rt 1 in that block will not walk the extra distance, unless there is a 10 ft barrier down the middle of the road they will continue to walk across the highway even if 6 lanes. It would be a waste of money.	4/19/2019 1:12 AM
43	Not safe	4/19/2019 12:40 AM
44	will flood, be impassable, and fill with trash hazardous to riding	4/18/2019 11:03 PM
45	Safety...creepy!	4/18/2019 10:11 PM
46	I would not use this underpass as I have a car. However, the residents of Gum Springs would use it to get to Costco and WalMart and the students who walk to Mount Vernon High School from the Lee District Side of Rt. 1 would also use it.	4/18/2019 9:52 PM
47	Too dangerous. This is not the safest area to walk underground.	4/18/2019 9:48 PM

Richmond Highway

48	I live on the east side of Richmond highway near MVHS and have no reason to walk to any establishment on the other side. It's too far to walk to shopping venues and there is no recreational attraction. The improvements will benefit the neighborhoods on either side of Richmond highway and I will appreciate the improved road and aesthetics. But it does not significantly effect my life.	4/18/2019 9:39 PM
49	dangerous move--to risky	4/18/2019 9:25 PM
50	Safety - individuals especially folks walking alone, the elderly and women will be targets for gangs, robbers and sexual predators. Vandalism - the walls of the underpasses will be canvases for individuals to express themselves, litter and human waste - lack of cleanliness -- the underpass walls will serve as an outdoor toilet for folks to relieve themselves, lastly the underpasses will provide a shelter for homeless folks to shelter in which in turn raises sanitation and litter issues	4/18/2019 9:07 PM
51	no one is walking in these two locations so why build there? are you inviting people to come there to cross? This is crazy.	4/18/2019 8:57 PM
52	Very dangerous	4/18/2019 8:55 PM
53	Because this is a dangerous part of our neighborhood and wouldn't be safe	4/18/2019 8:35 PM
54	There are sufficient crosswalks, without spending this money.	4/18/2019 6:28 PM
55	Email	4/18/2019 6:12 PM
56	Unnecessary	4/18/2019 5:27 PM
57	I am concerned about getting mugged because an underpass takes individuals out of public view. I would also be concerned about possible standing water. Having surfaced these concerns the concept is a good idea if it is handicap accessible and if pedestrians can still access a street-level cross walk if they so choose.	4/18/2019 5:15 PM
58	Too dangerous over pass safer	4/18/2019 5:02 PM
59	Too expensive.	4/18/2019 4:53 PM
60	To much crime, drugs & potential prostitution potential!	4/18/2019 4:35 PM
61	The folks cross in the middle of the block to get to the 7-11 don't think they would walk a longer distance	4/18/2019 4:07 PM
62	For all the disadvantages listed in the proposal: Safety • Maintenance • Trash • Graffiti • Snow • flooding	4/18/2019 3:59 PM
63	will be dirty, dark, unsafe	4/18/2019 3:50 PM
64	Am never on foot in that area. Complete waste of money unless the road is fenced off to prevent crossing at the surface level	4/18/2019 3:33 PM
65	I feel it would be unsafe. People could be assaulted.	4/18/2019 3:29 PM
66	This underpass is ina crime ridden area and will only provide cover for criminal activities.	4/18/2019 3:24 PM
67	It will be a dark, unsupervised place that will be more often used for activities that I don't want to walk past. I would use an overpass.	4/18/2019 3:12 PM
68	Safety in the area is a concern and an underpass will compromise personal safety. Vehicle vs. pedestrian safety will improve, but assaults and robberies may increase.	4/18/2019 3:10 PM
69	Criminals in the area will be mugging people in no time. I live here and no the area.	4/18/2019 1:21 PM
70	Safety concerns: it's a long underpass, and pedestrian traffic (eyes on the street) will be minimal	4/18/2019 12:23 PM
71	Unsafe idea, asking for crime	4/18/2019 12:14 PM
72	Safety - Buckman road not the greatest area!	4/18/2019 11:45 AM
73	Too much potential for running into a dangerous situation.	4/18/2019 11:36 AM
74	unsafe, will become a crime ridden area	4/18/2019 11:30 AM
75	No reason for over or under	4/18/2019 11:24 AM
76	safety, 7Eleven store must be relocated. The store brings too many pedestrian, traffic and crime issues.	4/18/2019 11:14 AM
77	wouldn't feel safe	4/18/2019 11:12 AM

Richmond Highway

78	Maybe, depends how it would connect to the cycling infrastructure on surrounding/connecting streets	4/18/2019 10:24 AM
79	Underpasses attract litter and are less safe than overpasses because their is less visibility. They could attract crime and loitering.	4/17/2019 6:39 AM
80	Pedestrian underpasses are magnets for crime.	4/16/2019 5:16 PM
81	If lighting and safety addressed then yes	4/16/2019 5:07 PM
82	It will not be maintained and with the crime rate in that neighborhood it creates a very unsafe place. Proper signaling and crosswalks are safer due to the violence in that area.	4/16/2019 4:28 PM
83	My experience with this type of underpass becomes a haven for crime, debris, and rodents/pests. Would prefer an open-air overpass.	4/15/2019 10:31 AM
84	Magnet for crime	4/14/2019 8:34 PM
85	Pedestrian underpasses are magnets for crime and squalor.	4/11/2019 11:01 PM
86	Safety Concerns	4/11/2019 9:56 PM
87	It could be dangerous for the pedestrians and bicyclists	4/11/2019 1:28 PM
88	potential danger of mugging	4/11/2019 5:41 AM
89	underpasses make easy spots for muggers to take advantage of people	4/10/2019 10:40 PM
90	lack of security, would provide cover for drugs, crime	4/10/2019 2:13 PM
91	I don't cross Richmond Highway anywhere near that location. Also, I wouldn't feel comfortable using the underpass at night. Additionally, my past experiences with other underpasses are that they become cluttered with trash, and smelly from public urination.	4/10/2019 2:49 AM
92	I don't believe this is an area where you find a lot of people trying to cross. There is also a crosswalk for people to use not that far away. Both are not located in the best of areas so safety would also be a concern.	4/9/2019 9:22 PM
93	Possibility of crime	4/9/2019 7:55 PM
94	Potential crime area	4/9/2019 6:56 PM
95	I think that it's a starting point for issues (crime, garbage) and will not be properly maintained and will quickly go downhill.	4/9/2019 4:30 PM
96	too many opportunities for crime & other activities in that area	4/9/2019 2:22 PM
97	Scared	4/9/2019 1:28 PM
98	too easy for vandals, thugs and miscreants to take advantage of people crossing underground out of sight	4/9/2019 10:44 AM
99	If they are dark and closed = equals safety concerns	4/9/2019 10:23 AM
100	Not a good crossing location	4/9/2019 9:24 AM
101	Not many people cross there and it seems like a place for criminals to hide out for mugging.	4/8/2019 9:31 PM
102	no side walks to get to the underpass from my home; unsafe area; expensive	4/8/2019 6:58 PM
103	The underpass is a ridiculous idea for security and crime reasons to begin with!	4/8/2019 5:34 PM
104	I would not feel safe going underground into the darkness by myself, especially if there is no security or maintenance planned.	4/8/2019 5:10 PM
105	Danger	4/8/2019 5:07 PM
106	SAFETY is a huge concern, as is maintenance	4/8/2019 5:02 PM
107	Already an unsafe area and this would increase the issues	4/8/2019 4:34 PM
108	There are appropriate crosswalks at Buckman and at Ladsen,	4/8/2019 4:34 PM
109	Would not feel safe.	4/8/2019 4:27 PM
110	No underpass	4/8/2019 12:43 PM

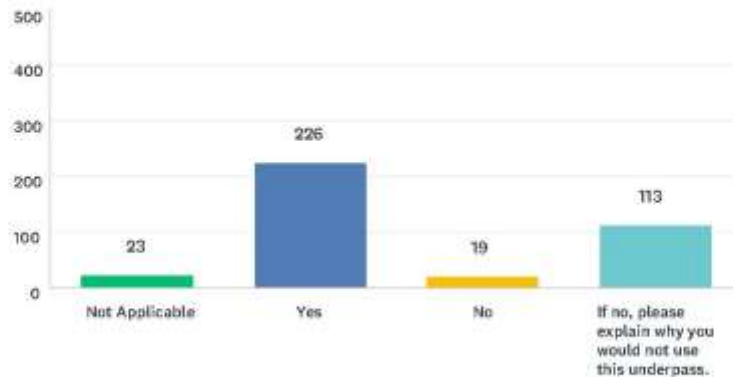
Richmond Highway

111	Buckman has a high crime rate. I would be concerned for my safety and would avoid walking in that area, especially in a tunnel like structure	4/7/2019 11:45 PM
112	This is not a heavy pedestrian area and people disregard safe and legal crossings on route 1 altogether	4/7/2019 11:06 PM
113	Not at convenient location	4/7/2019 10:09 PM
114	Underpass may be used as temporary home for homeless individuals. VDOT and FCPD do not have adequate resources to ensure the safety of individuals using the underpass. Knowing that most illegal activities occur during darkness, the underpass would draw similar illicit activities. It is doubtful that VDOT would provide adequate maintenance particularly during the winter since it's most likely there may be a flooding problem with the underpass.	4/6/2019 10:23 PM
115	Under the bridge = FLOODING - NOT CONDUCTIVE TO CYCLING OR WALKING	3/30/2019 8:33 AM
116	As a woman, no. Even in daylight it would be risky.	3/29/2019 12:19 PM
117	Safety concerns, homeless people, criminals	3/28/2019 4:29 PM
118	I would consider it unsafe at any time of the day or night.	3/28/2019 3:29 PM
119	Crime, lighting, trash, snow, water spray painting issues.	3/27/2019 8:17 AM
120	Switchbacks are difficult to navigate at speed. Underpass likely to flood often. Also likely to be utilized as homeless camp.	3/26/2019 11:57 PM
121	While convenient to build at the bridges, theres NOTHING around the sites that causes one to want to cross the street.	3/26/2019 10:19 PM
122	Wondering how this would affect the back of the houses on Napper Road which the creek flows behind	3/26/2019 7:23 AM
123	Would create environmental and security problems.	3/25/2019 11:13 PM
124	Too dangerous	3/25/2019 8:46 PM
125	Safety - if I were alone I would be extremely cautious about using such an isolated route. An overpass or street level crossing would be safer.	3/25/2019 4:11 PM

Richmond Highway

Q2 Dogue Creek (under Richmond Highway between Jeff Todd Way and Sacramento Drive)

Answered: 381 Skipped: 1



ANSWER CHOICES	RESPONSES
Not Applicable	6.04% 23
Yes	59.32% 226
No	4.99% 19
If no, please explain why you would not use this underpass.	29.66% 113
TOTAL	381

#	IF NO, PLEASE EXPLAIN WHY YOU WOULD NOT USE THIS UNDERPASS.	DATE
1	Rather cross at a signal and not much in this area worth crossing the road here.	4/26/2019 4:03 PM
2	Not saying I wouldn't, but it would need to feel safe from a personal safety perspective and easy to access-- the tight turnaround to access the tunnel feels difficult to maneuver on a bike and potentially tough to get away from someone, should the need arrive.	4/26/2019 10:53 AM
3	Dangerous at night. Would rather build over pass in the future	4/26/2019 10:35 AM
4	I do not live nearby. If I did use it, it would probably be only for very occasional recreation use.	4/26/2019 12:39 AM
5	High crime area and an underpass would create concealment for criminal activity (i.e. robbery, sexual assault, etc)	4/26/2019 12:33 AM
6	I'd be concerned for my safety due to isolation and increased risk of becoming a victim of crime.	4/25/2019 11:47 PM
7	See above	4/25/2019 10:59 AM
8	I don't live in the area	4/25/2019 2:19 AM
9	Safety concerns; flash flooding; debris & refuse.	4/24/2019 10:37 PM
10	Same as above	4/24/2019 8:02 PM
11	Not safe for pedestrians.	4/24/2019 7:54 PM
12	Dangerous for potential crime - overpass better	4/24/2019 10:49 AM
13	same as above	4/24/2019 7:23 AM
14	Safety concerns, especially at night.	4/23/2019 7:35 PM

Richmond Highway

15	Would not feel safe	4/23/2019 3:43 PM
16	This area is not safe enough for me to use anything that's not exposed to the public.	4/23/2019 1:32 PM
17	Same reason.	4/23/2019 12:37 PM
18	I'd be afraid of what was hiding in the underpass. A overpass would be much preferred.	4/23/2019 12:15 PM
19	Doesn't sound safe if no one is around and not in public view	4/23/2019 11:41 AM
20	As designed, the underpass is much longer than a straight crossing. It also leaves me feeling vulnerable to harassment and attack that can't be seen by passers-by. I can't tell what intersection crossing this is supposed to be in place of. Also it's even longer than the Little Hunting Creek tunnel.	4/23/2019 9:32 AM
21	Safety	4/23/2019 9:01 AM
22	Sans as above	4/23/2019 6:11 AM
23	The current design looks unsustantable from a safety and cleanliness perspective.	4/23/2019 4:45 AM
24	Underpasses are dangerous for pedestrians because they can't be seen. I can see rapes, murders, assaults, robbery, kidnapping and the like occurring. Overpasses are the way to go.	4/23/2019 4:01 AM
25	Don't want any opportunities for crime, drugs or homeless camp outs.	4/22/2019 9:49 PM
26	I don't think I would feel safe there especially with a young daughter	4/22/2019 9:33 PM
27	It will be dangerous.	4/22/2019 9:21 PM
28	Can't be seen by anyone above	4/22/2019 3:40 PM
29	Same answer	4/22/2019 12:08 PM
30	Homeless and criminal element likely present there	4/22/2019 8:03 AM
31	Unsafe for women and children- please provide an overhead pedestrian bike bridge over the roadway.	4/22/2019 7:21 AM
32	Safety concern and homeless taking up residence. pedestrian overpass should be considered.	4/21/2019 8:04 AM
33	not safe to cross in a tunnel. doesn't make sense.	4/20/2019 11:29 AM
34	I don't walk along Richmond Highway	4/19/2019 7:25 PM
35	I would not feel safe	4/19/2019 3:06 PM
36	safety concerns	4/19/2019 1:13 PM
37	My understanding. No trash No snow or removal. As of now, homeless/vagrant In area. Area might be different in 25yrs after road & developers finish	4/19/2019 10:32 AM
38	I would use the underpass only if well lit & safe	4/19/2019 9:52 AM
39	Safety first	4/19/2019 8:36 AM
40	What happens to the path when the creek floods? It does quite often. Besides there are few people who walk that section.	4/19/2019 1:12 AM
41	Not safe	4/19/2019 12:40 AM
42	Same as above	4/18/2019 11:03 PM
43	Who wants to walk underground?	4/18/2019 10:11 PM
44	I currently would not use this underpass as I am never on that part of Rt. 1. I take Jeff Todd Way or go around via Huntley Meadows to get to Springfield, Hayfield and Kingstowne. That doesn't mean there shouldn't be an under pass there however. If the bike share has a location at the new Army Museum, that would be a great way to get across highway to connect with the bike path that goes along the Potomac River.	4/18/2019 9:52 PM
45	Agy, too dangerous. The tunnels would be used as shelters for people.	4/18/2019 9:48 PM
46	I live near MVHS. Too far to walk for shopping. If connecting to the wetlands it might be useful for bike riders. Adjoining neighborhoods will benefit.	4/18/2019 9:39 PM
47	to dangerous	4/18/2019 9:25 PM

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48	Safety - individuals especially folks walking alone, the elderly and women will be targets for gangs, robbers and sexual predators. Vandalism - the walls of the underpasses will be canvases for individuals to express themselves, litter and human waste - lack of cleanliness --- the underpass walls will serve as an outdoor toilet for folks to relieve themselves, lastly the underpasses will provide a shelter for homeless folks to shelter in which in turn raises sanitation and litter issues	4/18/2019 9:07 PM
49	people are never walking there. why consider building something that wont be used/?	4/18/2019 8:57 PM
50	Very dangerous	4/18/2019 8:55 PM
51	Because this is a dangerous part of our neighborhood and wouldn't be safe	4/18/2019 8:35 PM
52	With the rising crime rate above ground, an underpass would be too dangerous to use.	4/18/2019 6:28 PM
53	Unnecessary	4/18/2019 5:27 PM
54	Same as number 1 above. Police would be required to exit patrol cars regularly to ensure there are no lurkers or homeless people living there.	4/18/2019 5:15 PM
55	Prefer overpass where pedestrians are visible	4/18/2019 5:02 PM
56	Same.	4/18/2019 4:53 PM
57	Same as above!	4/18/2019 4:35 PM
58	Again not much foot traffic there most cross at the hotel or just south of sacramento	4/18/2019 4:07 PM
59	For all the disadvantages listed in the proposal: Safety • Maintenance • Trash • Graffiti • Snow • flooding	4/18/2019 3:59 PM
60	will be dirty, dark, unsafe	4/18/2019 3:50 PM
61	Same as above. Unless the road is fenced off neither the under pass or road widening will make any safety improvements	4/18/2019 3:33 PM
62	I feel it would be unsafe. People could be assaulted.	4/18/2019 3:29 PM
63	Crime ridden area	4/18/2019 3:24 PM
64	It will be a dark, unsupervised place that will be more often used for activities that I don't want to walk past. I would use an overpass.	4/18/2019 3:12 PM
65	Same as above. Criminals will be attacking people.	4/18/2019 1:21 PM
66	Safety concerns: it's a long underpass, and pedestrian traffic (eyes on the street) will be minimal	4/18/2019 12:23 PM
67	Unsafe. Asking for crime	4/18/2019 12:14 PM
68	Same	4/18/2019 11:36 AM
69	unsafe, will become a criminal hangout	4/18/2019 11:30 AM
70	wouldn't feel safe	4/18/2019 11:12 AM
71	See above	4/17/2019 6:39 AM
72	I don't go to that section of Richmond Hwy.	4/16/2019 11:46 PM
73	Pedestrian traffic at Napper is worse.	4/16/2019 5:43 PM
74	I don't cross there.	4/16/2019 5:16 PM
75	If lighting and safety address then yes	4/16/2019 5:07 PM
76	Due to the crime and violence in that area it creates an unsafe area and haven for bad things to happen. Proper signs, signals and crosswalks are safer. Sidewalks would be a bonus since there are none anyway.	4/16/2019 4:28 PM
77	Magnet for crime	4/14/2019 8:34 PM
78	See above	4/11/2019 11:01 PM
79	I really don't know this one	4/11/2019 1:28 PM
80	potential danger of mugging	4/11/2019 5:41 AM
81	underpasses make easy spots for muggers to take advantage of people	4/10/2019 10:40 PM

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82	lack of security, would provide cover for drugs, crime	4/10/2019 2:13 PM
83	Same reasons as above,	4/10/2019 2:49 AM
84	o safety would also be a concern.	4/9/2019 9:22 PM
85	Potential to crime	4/9/2019 6:56 PM
86	I think that it's a starting point for issues (crime, garbage) and will not be properly maintained and will quickly go downhill.	4/9/2019 4:30 PM
87	A hazardous/dangerous option!	4/9/2019 1:28 PM
88	too easy for vandals, thugs and miscreants to take advantage of people crossing underground out of sight	4/9/2019 10:44 AM
89	If they are dark and closed = equals safety concerns	4/9/2019 10:23 AM
90	Not a good crossing location	4/9/2019 9:24 AM
91	In the five years I've lived in this area I don't think I've EVER seen anyone crossing on foot or bicycle at this intersection so I don't see the need.	4/8/2019 9:31 PM
92	no side walks to get to the underpass from my home; unsafe area; expensive	4/8/2019 6:58 PM
93	The underpass is a ridiculous idea for security and crime reasons to begin with!	4/8/2019 5:34 PM
94	Going into the darkness of a tunnel alone is not safe.	4/8/2019 5:10 PM
95	Danger	4/8/2019 5:07 PM
96	SAFETY is a huge concern, as is maintenance	4/8/2019 5:02 PM
97	Already an unsafe area and this would increase the issues	4/8/2019 4:34 PM
98	I don't cross the street there.	4/8/2019 4:34 PM
99	Would not feel safe.	4/8/2019 4:27 PM
100	Any underpass will be a great spot for homeless and drug addicts!	4/8/2019 12:43 PM
101	It's this a historic flood zone? Again, safety and lack of security is a major concern with any underground pathway.	4/7/2019 11:45 PM
102	Who actually walks here? It would be wasteful	4/7/2019 11:06 PM
103	Safety concerns	4/7/2019 10:09 PM
104	SEE ABOVE	3/30/2019 8:33 AM
105	Same as above	3/29/2019 12:19 PM
106	Safety concerns, homeless people, criminals	3/28/2019 4:29 PM
107	I would consider it unsafe at any time of the day or night.	3/28/2019 3:29 PM
108	Crime, lighting, trash, snow, water, spray painting issues, cost, who will maintain the problems.?	3/27/2019 8:17 AM
109	Switchbacks are difficult to navigate at speed, Underpass likely to flood often. Also likely to be utilized as homeless camp	3/26/2019 11:57 PM
110	While convenient to build at the bridges, theres NOTHING around the sites that causes one to want to cross the street.	3/25/2019 10:19 PM
111	Would create environmental and security problems	3/25/2019 11:13 PM
112	To dangerous	3/25/2019 8:46 PM
113	Safety - if I were alone I would be extremely cautious about using such an isolated route. An overpass or street level crossing would be safer.	3/25/2019 4:11 PM